1988 Region I Staff Meeting Minutes

March 2-4, 1988

Juneau, Alaska

Regional Information Report No. 1J88-7

Alaska Department of Fish and Game
Division of Commercial Fisheries, Southeast Region
P. O. Box 20
Douglas, Alaska 99824
April 1988

OPEN DISCUSSION

Open Discussion

Vessels:

1. Staff is to send special research, management and safety equipment requests, in memo form, to Paul Larson.

2. We should consider the replacement of current vessels. This will require C.I.P. requests. It will probably take 3 years, realistically.

3. We need new sonar equipment and loran plotters.

4. Maybe consider chartering for more projects, e.g., shellfish. We would need to charter for 2 or 3 years at a time. Some problems though, e.g., low bidder, or may lose program funds from one year to next.

5. Annual operational costs for State vessels is fairly low.

6. Maybe we should consider dumping the Sundance and Polaris and replacing them with one real work boat.

Shellfish: Koeneman

Area offices will probably be assuming more and more of their shellfish management responsibilities. They will need network data base access for shellfish data.

Rockfish Management

1. Smaller fish, dropping CPUE, quotas may be too high.

2. Phil - would like to close some of the fisheries around Ketchikan.

3. We don't have sufficient biological data to react fast enough to over fishing.

4. Rockfish Harvests: 350,000 lbs. in 1982, 2.7 million lbs. in 1987.

5. FCZ catches complicate catch/quota problems.

6. Sportfish Division did not follow through with rockfish bag limits.

7. We have one year of rockfish surveys so far. Need several years data to see trends.

1988 REGION I STAFF MEETING MINUTES

March 2-4, 1988

Juneau, Alaska

Compiled and Edited

By

Gary Gunstrom

Regional Information Report[1] No. 1J88-7

Alaska Department of Fish and Game
Division of Commercial Fisheries, Southeast Region
P. O. Box 20
Douglas, Alaska 99824

April 1988

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[1] The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate needs for up-to-date information, reports in this series may contain preliminary data.

MEMORANDUM State of Alaska

TO: Dave Cantillon
Region I Supervisor
Commercial Fisheries Division
Douglas

THRU:

DATE: April 1, 1988

FILE NO.:

TELEPHONE NO.: 465-4250

SUBJECT: 1988 Region Staff Meeting Minutes

FROM: Gary Gunstrom G.
Region I Research Supervisor
Commercial Fisheries Division
Douglas

Enclosed please find the final (revised) agenda for our 1988 Region Staff Meeting, an attendance list, and the meeting minutes, arranged in order by agenda topic.

Copies of this bound document are being sent to each Area Office for reference use. Staff critique of the 1988 meeting would be useful for planning subsequent years' meetings.

Enclosures

COMMERCIAL FISHERIES DIVISION
1988 Region I Staff Meeting

Juneau
March 2-4

Final Agenda (Revised)

Wednesday, March 2

Administration	Discussion Leader(s)
1:30 p.m. - FY 88/89 Budget Status	Cantillon
2:00 p.m. - Administrative Support Concerns	Joubert/Wolfe/Abel
2:30 p.m. - Publications Process/Progress	Wilbur
3:00 p.m. - Coffee	
3:15 p.m. - U.S./Canada Program Status	Cantillon
3:45 p.m. - POPs	Gunstrom/Rigby
4:00 p.m. - Vessels Scheduling, Management	Muir/Larson

Dinner

Management/Research Needs and Priorities

7:00 p.m. - Review: Coho Predation on Pink Salmon	Hofmeister/Staff
7:45 p.m. - Review: Pink Salmon Escapement Calibration and Forecasting	Jones/Staff
8:30 p.m. - Review: Pink Salmon Sex Ratio Studies & Management Applications	Hofmeister/Van Alen

Thursday, March 3

8:15 a.m. - Region Position on Developing Fisheries	Staff
9:15 a.m. - Team Approach to Shellfish Management/ Research	Koeneman
10:15 a.m. - Coffee	
10:30 a.m. - Region Position on Mariculture	Staff
11:15 a.m. - Stream Monitoring Committee Report; SWAT Approach	Gunstrom

Lunch

1:15 p.m. - Sockeye Limnological Studies	Barto/Marshall
2:00 p.m. - Sockeye Hydroacoustic Studies	Oliver
2:15 p.m. - Taku River Run Reconstruction	McGregor
2:30 p.m. - Stikine River Sockeye Studies	Jensen
2:45 p.m. - Lynn Canal Sockeye Studies	McPherson
3:00 p.m. - Coffee	
3:15 p.m. - Subsistence Permits, 1988	P. Larson
4:00 p.m. - Sockeye Escapement Committee Report & Region Sockeye Species Approach	Gunstrom
4:30 p.m. - Region Coho Species Approach	Gunstrom

Friday, March 4

Computer and Software Topics

8:15 a.m. - Review: Region II Escapement Software	Meachum
8:30 a.m. - Computer and Software Acquisition & Computer Network Update	Seibel/Marshall/ Alexandersdottir
9:00 a.m. - Database Management	Alexandersdottir
10:00 a.m. - Coffee	

Tongass Land Use Management Plan

10:15 a.m. - TLUMP Revision	Shea

Open Discussion

11:00 a.m. - Open Discussion Topics Vessels - Equipment & Needs Shellfish Management Database Rockfish Management Herring & Shellfish Fisheries/Quotas	Staff

1988 Region I Staff Meeting
Juneau
March 2-4, 1988

Attendance List

Dave Cantillon
Gary Gunstrom
Paul Larson
Don Ingledue
William Bergmann
Dennis Blankenbeckler
Bob DeJong
Marianna Alexandersdottir
Brian Lynch
Scott McPherson
Alan Davis
Karl Hofmeister
Cathy Botelho
Phil Doherty
Randy Timothy
Tim Minicucci
Hal Geiger
Norma Jean Sands
Chuck Meachum
Doug Jones
Lana Shea
Joe Muir
Glen Oliver
Michele Joubert
Ken Imamura
Bob Wilbur
Barry Bracken
Andy McGregor
Scott Marshall
Leon Shaul
Tim Koeneman
Ben Van Alen
Jim Dangel
Jan Weller
Keith Pahlke
Bob Larson
Gordon Kruse
Mike Dean
Phil Rigby
Karla McLean
Kathleen Jensen
Sherri Wolfe
Mel Seibel
Dave Barto
Betty Abel

ADMINISTRATION

FY 88/89 Budget Status

Discussion Leader: Cantillon

Items:

1. FY 88 Preaudits
   - Region was short $110,000, mostly due to the 10% Line 100 withholding; otherwise, our overall budget balanced.
   - HQ will cover the shortfall.
   - U.S./Canada Program budget balances.

2. FY 89 G.F.
   - Holding pattern for now, we may see a few program add-ons.

3. FY 89 U.S./Canada
   - Program funds are expected to shrink somewhat due to Federal budget cuts.
   - At least a 6.4% Graham/Rudman cut, maybe more.

Administrative Support Concerns

Discussion Leaders: Joubert, Wolfe, Abel

Items:

1. "Roses" - Betty Abel said we're doing a good job in following procedures, urged that we continue to work through our Administrative Assistant.

2. Handout - "Administrative Reminders," and review by Sherri Wolfe.

3. Time Sheets - Staff was reminded to total hours by column, add budget code, and sign.

4. Property Inventories - Due in HQ April 1.

1988 SOUTHEAST REGION STAFF MEETING

ADMINISTRATIVE REMINDERS

Hourly Employees: Non-permanent, Emergency Hire and Part-time permanent-seasonals (working <37.5 hour/wk). Time sheets are required every two weeks for these employee types.

Monthly Employees: Permanent full-time (12 mm) and permanent seasonals working full-time (37.5 hour/wk). Time sheets are required monthly for these employee types.

All timesheets must be signed and must have budget codes on them. Please total the regular time column and the leave column. These columns should equal the total hours in that month. You include holidays in the actual time column total.

It is our Regional policy to have all Federally funded and overtime eligible employees, including vessels personnel, fill out both sides of the time-sheet. This means the start and stop times on the back must be filled out.

Part-time and non-perm employees who work no hours in a pay period must submit a "No Hours Worked" timesheet, signed and sent in as usual.

Leave Slips: Employees do not have to sign, but you as a supervisor must.

FLSA/OVERTIME ELIGIBLE Employees: Time sheets are required to be completed on both sides, including start and stop times.

I-9 Forms: Don't forget these must be filled out for all new employees.

Employment of A Minor: Last season we had a problems with hiring minors because of certain forms that must be filled out (approval to hire a minor) before we can bring them on board. Please check applications carefully for age when hiring someone who may be under 18.

PROFS NOTES: Are an excellent tool for us. Please have your staff use PROFS when instituting code changes on employees, LWOP or Return from LWOP notification, notifying us of impending terminations and for questions about pay problems, insurance problems or timesheet problems. As a last resort and only as a last resort, you may send a profs note concerning a late timesheet as long as you have the original timesheet in hand.

NEW RELEASE SYSTEM:

Another excellent tool. Not to be confused with PROFS. The news release system is entirely different from PROFS. If you tell us you are sending something over PROFS, that is where we will look for it. We will be setting up a schedule again this year for the use of the news release system on a daily basis.

Ajusting Journal Entries (AJE's):

Project Leaders are required to submit written memorandums for justification requests for AJE's. PROFS messages are not acceptable for these requests.

PURCHASING

New Procurement Law:

Purchases for brand specific, vendor specific or those limiting participation require a Request for Alternative Procurement (RAP) sheet typed and submitted with the Purchase Requisition (PR). Project Leaders can expect purchases to take considerably longer under the new law. This is in part due to the various levels of authority involved and interpretation at each level of the new procurement procedures. Plan ahead, submit requests early.

Individual (s) submitting PR's will greatly expedite their purchases by providing the 3 bids necessary for purchases >$500.00. If you leave this portion blank, long delays can be expected. The Regional Administrative Officer (RAO), Division of Administration does not process PR's submitted without the 3 bids necessary on PR's exceeding $500. Supply Section can often supplement your bid information, but they are better prepared to expeditiously process PR's that come in with 3 bids. If supply has to get your 3 bids, prepare for delays.

Purchase Requisitions generally generate Delivery Orders (D.O.'s) or Field Warrants. <u>All</u> D.O.'s for equipment need to be sent to the Regional Administrative Assistant for this division once the items have been received and the receiving information completed on the D.O. copy. The D.O. is reviewed and corrected for property inventory information <u>before</u> it is then mailed to the RAO or Supply Section for final payment. This information also allows us to track and release encumbrances set up for the purchase when the D.O. was initiated.

PROPERTY INVENTORY

We have an April 1 deadline to have this information back to Bill Jackson. Please return to the Region as soon as possible to ensure we are able to meet this deadline.

HELP, HELP, HELP!: Please give us a chance to help you with your administrative needs before going around us. The more information you can provide us with and the more lead time you can give us, the faster, easier and better we can serve you. Try not to wait until the last minute.

COMMUNICATION: Its the key to a smooth-run operation. What helps the most is keeping us informed. We can't help you if we have to second guess what the problem is. Let us know what you need before it needs doing. Ask us the best way to solve a problem before trying to solve it without our input. (PROFS is excellent for this). We will promise to help you solve the problems in the best way we can considering the facts, statements and knowledge you give us to do the job.

THANKS AND GOOD LUCK !

Publications Process/Progress

Discussion Leader: Wilbur

Items:

1. Four Report Types: Described in Department Publications Manual

    1.) Regional Information Reports
    2.) Technical Fishery Reports
    3.) Fishery Research Bulletins
    4.) Professional Paper Series

2. Referee Assignments

    - Maybe look at 30% staff level in S.E. to see if it is accurate.
    - Reviews are supposed to be anonymous.

3. Authorship

    - POP should state principal author.
    - Determine authorship status early in the study.

4. Handout - Comparison of Review Assignments by Region for 1987, Parts 1-4.

5. Handout - Guide for Reviewers.

6. Handout - Status Request Per Preparation.

MARCH 1, 1988

- PART 1 -
COMPARISON OF REVIEW ASSIGNMENTS BY REGION FOR 1987

REGION	NUMBER	PERCENT	TARGET* (%)
-Total Number of Reviews Conducted (unweighted)-			
REGION I:	15.0	27.8	30.0
REGION II:	11.0	20.4	23.0
REGION III:	7.0	13.0	14.0
REGION IV:	10.0	18.5	21.0
HEADQUARTER	11.0	20.4	12.0
ALL REGIONS	54.0	100.0	100.0
-Total Number of Reviews Conducted (weighted)- **			
REGION I:	18.6	28.8	30.0
REGION II:	12.9	20.0	23.0
REGION III:	7.9	12.2	14.0
REGION IV:	12.2	18.9	21.0
HEADQUARTER	13.0	20.1	12.0
ALL REGIONS	64.6	100.0	100.0
-Total Number of Pages Reviewed- ***			
REGION I:	1754.0	32.1	30.0
REGION II:	932.0	17.1	23.0
REGION III:	677.0	12.4	14.0
REGION IV:	967.0	17.7	21.0
HEADQUARTER	1136.0	20.8	12.0
ALL REGIONS	5466.0	100.0	100.0

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*Based on the relative number of staff available to conduct reviews.

**Weighting based on additives reflecting: a) total pages, b) text content difficulty, & c) # of table/figure iterations.

***Review pages may exceed pages produced. Page breakdowns as follows:

	Pre-Text	Text	Tables/Fig.	Appendices
REGION I:	127	382	421	824
REGION II:	73	287	253	319
REGION III:	56	134	153	334
REGION IV:	72	308	340	247
HEADQUARTERS	77	246	313	500
ALL REGIONS:	405	1357	1480	2224

MARCH 1, 1988

- PART 2 -
COMPARISON OF REGIONAL MANUSCRIPT PRODUCTION, 1987

REGION	ACTUAL Y.T.D. NUMBER	ACTUAL Y.T.D. PERCENT	END OF YEAR TARGET* (%)
-Total Number of Manuscripts Produced- **			
REGION I:	11.0	23.4	1.0
REGION II:	18.0	38.3	1.0
REGION III:	7.0	14.9	1.0
REGION IV:	8.0	17.0	1.0
HEADQUARTER	3.0	6.4	1.0
ALL REGIONS	47.0	100.0	5.0
-Total Number of Pages Produced- ***			
REGION I:	1164.0	23.8	
REGION II:	2127.0	43.4	
REGION III:	607.0	12.4	
REGION IV:	859.0	17.5	
HEADQUARTER	143.0	2.9	
ALL REGIONS	4900.0	100.0	

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*Based on planned number of manuscripts to be produced this calendar year.

**Latest ID Numbers Assigned Each Region:

REGION I:	1011
REGION II:	2018
REGION III:	3007
REGION IV:	4009
HEADQUARTERS	5003

***Page beakdowns as follows:

	Pre-Text	Text	Tables/Fig.	Appendices
REGION I:	81	297	291	495
REGION II:	145	477	647	858
REGION III:	49	194	175	189
REGION IV:	69	108	130	552
HEADQUARTERS	15	55	54	19
ALL REGIONS:	359	1131	1297	2113

- PART 3 -

REVIEWS CONDUCTED THIS CALENDAR YEAR BY REGION

AS OF MARCH 1, 1988

REGION 1

REVIEWER	MANUSCRIPT ID#		R.D.I.*
ALEXANDERSDOTTIR M	[redacted]		1.3
BERGMANN W	[redacted]		1.3
DANGLE J	[redacted]		1.6
DOHERTY P	[redacted]		1.0
JENSEN K	[redacted]		1.6
JONES D	[redacted]		0.4
KOENEMAN T	[redacted]		0.7
	[redacted]		0.7
		REVIEWER TOTAL:	1.4
McGREGOR A	[redacted]		1.5
McPHERSON S	[redacted]		1.4
	[redacted]		1.9
		REVIEWER TOTAL:	3.3
OLIVER G	[redacted]		1.3
SEIBEL M	[redacted]		1.3
STASKA R	[redacted]		1.0
VAN ALEN B	[redacted]		1.6
		REGIONAL TOTAL:	18.6

- PART 4 -
MANUSCRIPTS RECEIVED AT HQ THIS YEAR AS OF MARCH 1, 1988
(In Order As Processed)

AUTHOR(S): McCOLLOUGH ID# 87- 4001
TITLE:
ABUNDANCE AGE SEX SIZE SALMON CATCHES ESCAPEMENTS AK PENINSULA-ALEUTIAN 1985
PUB. TYPE: TDR
Date Received at HQ: 18/XII/86
Date Final Draft OK'd: 14/V/87
Date Published(ID#): 17/VI/87
Hrs Spent on Reviews: 28.5
Mos to Rev. & Publish: 6
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): HICKS ID# 87- 4002
TITLE: 1986 KING/DUNGENESS CRAB SURVEY KODIAK AK
PUB. TYPE: TDR
Date Received at HQ: 06/I/87
Date Final Draft OK'd: 18/V/87
Date Published(ID#): 28/V/87
Hrs Spent on Reviews: 9
Mos to Rev. & Publish: 4.8
Reviewed By Reg. 2 [redacted] (*=review received)

AUTHOR(S): O'CONNELL ID# 87- 1001
TITLE:
SPAWNING SEASON SEBASTES LANDED SE AK LONGLINE FISHERY NEARSHORE ROCKFISH 1982
5
PUB. TYPE: IL
Date Received at HQ: 24/XII/86
Date Final Draft OK'd: 30/VI/87
Date Published(ID#): 30/VIII/87
Hrs Spent on Reviews: 26
Mos to Rev. & Publish: 8
Reviewed By Reg. 5 [redacted] (*=review received)
Reviewed By Reg. 5 [redacted] (*=review received)

AUTHOR(S): BARRETT ID# 87- 4003
TITLE: 1985 CHIGNIK MANAGEMENT SALMON CATCH ESCAPEMENT SAMPLING STAT
PUB. TYPE: TDR
Date Received at HQ: 06/I/87
Date Final Draft OK'd: 21/V/87
Date Published(ID#): 29/V/87
Hrs Spent on Reviews: 15
Mos to Rev. & Publish: 4.8
Reviewed By Reg. 3 [redacted] (*=review received)

AUTHOR(S): FRIED & BUE (editors) ID# 87- 2001
TITLE: 1983 B.B. SOCKEYE SMOLT STUDIES
PUB. TYPE: TDR
Date Received at HQ: 23/XII/86
Date Final Draft OK'd: 21/V/87
Date Published(ID#): 08/VI/87
Hrs Spent on Reviews: 20
Mos to Rev. & Publish: 6.5
Reviewed By Reg. 4 [redacted] (*=review received)
Reviewed By Reg. 5 [redacted] (*=review received)

AUTHOR(S): EGGERS & SHAUL ID# 87- 5001
TITLE:
ASSESSMENT B.B. SOCKEYE RUN STRENGTH BASED INSEASON PERFORM. S.PEN. INTERCEPT. ISHERY
PUB. TYPE: IL

Date Received at HQ:	20/I/87	
Date Final Draft OK'd:	21/VIII/87	
Date Published(ID#):	18/IX/87	
Hrs Spent on Reviews:	10	
Mos to Rev. & Publish:	8	
Reviewed By Reg. 3	[redacted]	(*=review received)

AUTHOR(S): DONALDSON ID# 87- 2002
TITLE: 1986 PWS TANNER TAGGING & INDEX STUDY
PUB. TYPE: TDR

Date Received at HQ:	16/I/87	
Date Final Draft OK'd:	15/XI/87@	(@=redraft due date)
Date Published(ID#):	?	
Hrs Spent on Reviews:	0	
Mos to Rev. & Publish:	0	
Reviewed By Reg. 3	[redacted]	(*=review received)

AUTHOR(S): CLARK-PAHLKE-ROWSE ID# 87- 1002
TITLE: ESTIMATED CONTRIBUTION CODE WIRE COHO TO COMM. FISHERIES SE AK 1980
PUB. TYPE: TDR

Date Received at HQ:	15/I/87	
Date Final Draft OK'd:	20/V/87	
Date Published(ID#):	26/V/87	
Hrs Spent on Reviews:	8.5	
Mos to Rev. & Publish:	4.3	
Reviewed By Reg. 4	[redacted]	(*=review received)

AUTHOR(S): WOOD & VAN ALEN ID# 87- 1003
TITLE: ABUNDANCE AGE SEX & SIZE OF COHO CATHCHES & ESCAPEMENTS SE AK 1985
PUB. TYPE: TDR

Date Received at HQ:	03/II/87	
Date Final Draft OK'd:	03/VI/87	
Date Published(ID#):	15/VI/87	
Hrs Spent on Reviews:	13	
Mos to Rev. & Publish:	4.5	
Reviewed By Reg. 5	[redacted]	(*=review received)

AUTHOR(S): MORESTAD & LEBIDA ID# 87- 2003
TITLE: FEASIBILITY OTOLITHS CHARACTERIZE E BERING SEA HERRING
PUB. TYPE: IL

Date Received at HQ:	12/II/87	
Date Final Draft OK'd:	15/XI/87@	(@=redraft due date)
Date Published(ID#):	?	
Hrs Spent on Reviews:	0	
Mos to Rev. & Publish:	0	
Reviewed By Reg. 1	[redacted]	(*=review received)

AUTHOR(S): KIMKER & DONALDSON ID# 87- 2004
TITLE: SUMMARY 1985 STREAMER TAG TO SPOT SHRIMP IN PWS
PUB. TYPE: TDR
Date Received at HQ: 19/II/87
Date Final Draft OK'd: 22/I/88@ (@=redraft due date)
Date Published(ID#):
Kimker decided 04/XII/87 not to publish
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): EDGINGTON & LYNCH ID# 87- 1004
TITLE: STIKINE STUDIES SALMONID REARING HABITAT HYDRO DEVELOPMENT
PUB. TYPE: IL
Date Received at HQ: 12/II/87
Date Final Draft OK'd: OPEN ENDED@ (@=redraft due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 2 [redacted] (*=review received)
Reviewed By Reg. 4 [redacted] (*=review received)

AUTHOR(S): VAN ALLEN & PAHLKE & OLSEN ID# 87- 1005
TITLE: ABUNCANCE AGE SEX SIZE CHINOOK CATCH/ESCAPEMENT SE AK 1985
PUB. TYPE: TDR
Date Received at HQ: 16/II/87
Date Final Draft OK'd: 17/IX/87
Date Published(ID#): 27/IX/87
Hrs Spent on Reviews: 21.5
Mos to Rev. & Publish: 7.4
Reviewed By Reg. 2 [redacted] (*=review received)

AUTHOR(S): BRANNIAN ID# 87- 3001
TITLE: POPULATION ASSESSMENT RED KING CRAB NORTON SOUND AK 1985
PUB. TYPE: TDR
Date Received at HQ: 03/III/87
Date Final Draft OK'd: 31/VII/87
Date Published(ID#): 15/VIII/87
Hrs Spent on Reviews: 14
Mos to Rev. & Publish: 5
Reviewed By Reg. 1 [redacted]
(*=review received)

AUTHOR(S): CROSS-GOSHERT-HICKS ID# 87- 2005
TITLE: ORIGINS OF SOCKEYE SALMON FISHERIES UPPER COOK INLET 1984
PUB. TYPE: TDR
Date Received at HQ: 10/III/87
Date Final Draft OK'd: 16/IX/87
Date Published(ID#): 15/X/87
Hrs Spent on Reviews: 20
Mos to Rev. & Publish: 7
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): HUTTENDEN D ID# 87- 3002
TITLE: ABUNDANCE AGE SEX SIZE SALMON CATCH ESCAPEMENT KUSKOWIM AREA 1985
PUB. TYPE: TDR

Date Received at HQ:	11/III/87	
Date Final Draft OK'd:	24/VII/87	
Date Published(ID#):	10/VIII/87	
Hrs Spent on Reviews:	16	
Mos to Rev. & Publish:	5	
Reviewed By Reg. 2	[redacted]	(*=review received)

AUTHOR(S): McPHERSON S ID# 87- 1006
TITLE:
CONTRIBUTION EXPLOITATION & MIGRATORY TIMING SOCKEYE LYNN CANAL IN 1985
PUB. TYPE: TDR

Date Received at HQ:	25/III/87	
Date Final Draft OK'd:	14/X/87	
Date Published(ID#):	26/X/87	
Hrs Spent on Reviews:	13.5	
Mos to Rev. & Publish:	7	
Reviewed By Reg. 2	[redacted]	(*=review received)

AUTHOR(S): LEBIDA R ID# 87- 2006
TITLE:
AGE SEX SIZE HERRING FROM EASTERN BERING SEA SPAWNING SITES ALASKA 1986
PUB. TYPE: TDR

Date Received at HQ:	26/III/87	
Date Final Draft OK'd:	10/IX/87	
Date Published(ID#):	30/IX/87	
Hrs Spent on Reviews:	12	
Mos to Rev. & Publish:	6	
Reviewed By Reg. 4	[redacted]	(*=review received)

AUTHOR(S): FRIED & YUEN ID# 87- 2007
TITLE: SYNOPSIS & CRITIQUE OF FORECASTS SOCKEYE TO BRISTOL BAY IN 1987
PUB. TYPE: TDR or IL to be resolved

Date Received at HQ:	18/III/87	
Date Final Draft OK'd:	21/VIII/87	
Date Published(ID#):	16/X/87	
Hrs Spent on Reviews:	10	
Mos to Rev. & Publish:	7	
Reviewed By Reg. 3	[redacted]	(*=review received)

AUTHOR(S): TARBOX & KING ID# 87- 2008
TITLE:
ESTIMATE OF JUVENILE SOCKEYE IN SKILAK & KENAI LAKES HYDROACOUSTIC TECHNIQUES
PUB. TYPE: TDR

Date Received at HQ:	06/IV/87	
Date Final Draft OK'd:	11/XII/87@	(@=redraft due date)
Date Published(ID#):	?	
Hrs Spent on Reviews:	0	
Mos to Rev. & Publish:	0	
Reviewed By Reg. 5	[redacted]	(*=review received)

AUTHOR(S): MERRITT-BERNARD-KRUSE ID# 87- 2009
TITLE:
KING CRAB STK ASSMT STUDIES LOWER CI 1984-5 & CALC HIST MEAN CATCH/POT
PUB. TYPE: IL
Date Received at HQ: 06/IV/87
Date Final Draft OK'd: 12/II/88
Date Published(ID#): ?
Hrs Spent on Reviews: 33
Mos to Rev. & Publish: 0
Reviewed By Reg. 4 [redacted] (*=review received)

AUTHOR(S): SHAUL-GRAY-KOENER ID# 87- 1007
TITLE: CODED-WIRE TAGGING COHO IN SE AK 1984-85
PUB. TYPE: TDR
Date Received at HQ: 21/IV/87
Date Final Draft OK'd: 14/X/87
Date Published(ID#): 01/XI/87
Hrs Spent on Reviews: 17.5
Mos to Rev. & Publish: 6.3
Reviewed By Reg. 3 [redacted] (*=review received)

AUTHOR(S): BARRETT ID# 87- 4004
TITLE: FRAZER LAKE SOCKEYE SALMON SMOLT & ESCAPEMENT INVESTIGATIONS 1986
PUB. TYPE: TDR
Date Received at HQ: 22/IV/87
Date Final Draft OK'd: 04/I/87@ (@=redraft due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): BLAU ID# 87- 4005
TITLE: RED KING CRAB 1986 SURVEY KODIAK AK
PUB. TYPE: TDR
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Mos to Rev. & Publish: 0
Reviewed By Reg. 2 [redacted] (*=review received)

AUTHOR(S): JOHNSON & BARRETT ID# 87- 4006
TITLE:
ESTIMATION OF SALMON ESCAPEMENT BASED ON STREAM SURVEY DATA - A GEOMETRIC APPR
CH
PUB. TYPE: IL
Date Received at HQ: 17/IV/87
Date Final Draft OK'd: OPEN ENDED@ (@=redraft due date)
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Mos to Rev. & Publish: 0
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AUTHOR(S): McPHERSON & JONES ID# 87- 1008
TITLE: CONTRIBUTION EXPLOITATION & MIG TIMING SOCKEYE TO LYNN CANAL 1986
PUB. TYPE: TDR
Date Received at HQ: 04/V/87
Date Final Draft OK'd: 20/XI/87
Date Published(ID#): 7/XII/87
Hrs Spent on Reviews: 27
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AUTHOR(S): KING & TARBOX ID# 87- 2010
TITLE: UPPER COOK INLER SALMON ESCAPEMENT STUDIES 1985
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Date Received at HQ: 21/V/87
Date Final Draft OK'd: 22/X/87
Date Published(ID#): 01/XI/87
Hrs Spent on Reviews: 13
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AUTHOR(S): WILCOCK ID# 87- 3003
TITLE:
FEASIBILITY OF USING SCALE PATTERNS TO ID CHUM IN YUKON R FISHERIES 1986
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Date Received at HQ: 01/VI/87
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Date Published(ID#): 11/XI/87
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AUTHOR(S): RUSSELL (editor) ID# 87- 2011
TITLE: SALMON SPAWNING GROUND SURVEYS IN BISTOL BAY 1986
PUB. TYPE: TDR
Date Received at HQ: 03/VI/87
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Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): HUTTUNEN & BRANNIAN ID# 87- 3004
TITLE: 1986 KUSKOWIM RIVER SALMON ABUNDANCE ESTIMATION...CPUE DATA
PUB. TYPE: IL
Date Received at HQ: 07/VII/87
Date Final Draft OK'd: 01/III/88@ (@=redraft due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 4 [redacted] (*=review received)

AUTHOR(S): DONALDSON WM ID# 87- 4007
TITLE: POPULATION ASSESSMENT TRAWL SURVEY FOR TANNER CRAB AROUND KODIAK 19

PUB. TYPE: TDR
Date Received at HQ: 06/VII/87
Date Final Draft OK'd: 22/II/88
Date Published(ID#): ?
Hrs Spent on Reviews: 10.5
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): JONES & HOFFMEISTER & DANGLE ID# 87- 1009
TITLE: PINK & CHUM SALMON INVESTIGATIONS IN SOUTHEAST ALASKA 1986-87
PUB. TYPE: TDR
Date Received at HQ: 28/VII/87
Date Final Draft OK'd: 11/II/88
Date Published(ID#): ?
Hrs Spent on Reviews: 24.5
Mos to Rev. & Publish: 0
Reviewed By Reg. 2 [redacted] (*=review received)

AUTHOR(S): KRUSE G ID# 87- 5002
TITLE:
AN ANNOTATED BIBLIOGRAPHY OF SELECTED PUBLICATIONS ON THE DUNGENESS CRAB
PUB. TYPE: IL
Date Received at HQ: 14/VIII/87
Date Final Draft OK'd: 01/X/87
Date Published(ID#): 07/X/87
Hrs Spent on Reviews: 7
Mos to Rev. & Publish: 1.8
Reviewed By Reg. 5 [redacted] (*=review received)
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AUTHOR(S): BUCKLIS L ID# 87- 3005
TITLE: AGE SEX & SIZE OF YOUKON RIVER SALMON CATCH AND ESCAPEMENT
PUB. TYPE: TDR
Date Received at HQ: 02/IX/87
Date Final Draft OK'd: 01/XII/87
Date Published(ID#): 18/XII/87
Hrs Spent on Reviews: 14.5
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AUTHOR(S): BARRETT B ID# 87- 4009
TITLE: CHIGNIC MANAGEMENT AREA CALMON CATCH AND ESCAPEMENT STATISTICS
PUB. TYPE: TDR
Date Received at HQ: 04/IX/87
Date Final Draft OK'd: 22/II/88
Date Published(ID#): ?
Hrs Spent on Reviews: 9.5
Mos to Rev. & Publish: 0
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AUTHOR(S): TARBOX K[illegible] ID# 87- 2012
TITLE: MIGRATORY RATE & BEHAVIOR OF SALMON IN UPPER COOK INLET 1983-84
PUB. TYPE: TFR
Date Received at HQ: 12/X/87
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Mos to Rev. & Publish: 0
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AUTHOR(S): SHARR & PECKHAM & CARPENTER ID# 87- 2013
TITLE: C & E STATISTICS FOR COPPER R BERING R & PWS ... SALMON 1986
PUB. TYPE: TDR
Date Received at HQ: 15/X/87
Date Final Draft OK'd: 06/IV/88@ (@=redraft due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
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AUTHOR(S): KING & TARBOX ID# 87- 2014
TITLE: UPPER COOK INLET SALMON ESCAPEMENT STUDIES 1986
PUB. TYPE: TFR
Date Received at HQ: 12/X/87
Date Final Draft OK'd: 15/II/88@ (@=redraft due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted] (*=review received)

AUTHOR(S): MERRITT-WILCOCK-BRANNIAN ID# 87- 3006
TITLE: ORIGINS OF CHINOOK SALMON IN THE YUKON RIVER FISHERIES 1986
PUB. TYPE: IL
Date Received at HQ: 01/X/87
Date Final Draft OK'd: 09/II/88
Date Published(ID#): ?
Hrs Spent on Reviews: 30
Mos to Rev. & Publish: 0
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Reviewed By Reg. 5 [redacted] (*=review received)

AUTHOR(S): BRANNIAN & GNATH ID# 87- 3007
TITLE: SUBSISTENCE HARVEST OF SALMON ..YUKON R. 1986 WITH HISTOICAL OVERVI

PUB. TYPE: IL
Date Received at HQ: 09/XI/87
Date Final Draft OK'd: 15/III/88@ (@=redraft due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted] (*=review received)
Reviewed By Reg. 2 [redacted] (*=review received)

AUTHOR(S): YUEN - ESCHENBACH -BAKER ID# 87- 2015
TITLE: TRADEOFF BETWEEN ESCAPEMENT & HARVEST IN A MIXED STOCK FISHERY
PUB. TYPE: PP
Date Received at HQ: 16/XI/87
Date Final Draft OK'd: 05/II/88* (*=review due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
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Reviewed By Reg. 5 [redacted]

AUTHOR(S): CROSS & GOSHERT ID# 87- 2016
TITLE:
ORIGINS OF SOCKEYE SALMON IN THE FISHERIES OF UPPER COOK INLET 1985 BASED...
PUB. TYPE: TFR
Date Received at HQ: 19/XI/87
Date Final Draft OK'd: 22/I/88* (*=review due date)
Date Published(ID#): ?
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Reviewed By Reg. 1 [redacted]

AUTHOR(S): PAHLKE & RIFFE ID# 87- 1010
TITLE: COMPILATION OF CATCH AGE SEX & SIZE ...SALMON... YAKUTAT...1986
PUB. TYPE: TFR
Date Received at HQ: 08/XII/87
Date Final Draft OK'd: 16/I/88* (*=review due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 5 [redacted] (*=review received)

AUTHOR(S): JENSEN-OLIVER-FRANK ID# 87- 1011
TITLE: CONTRIBUTIONS OF SOCKEYE ... SE AK DIST. 106 & 108 & CAN. STIKINE..
PUB. TYPE: TDR
Date Received at HQ: 18/XII/87
Date Final Draft OK'd: 05/II/88* (*=review due date)
Date Published(ID#): ?
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Mos to Rev. & Publish: 0
Reviewed By Reg. 4 [redacted]

AUTHOR(S): WALTEMYER ID# 87- 2017
TITLE:
ORIGINS OF SOCKEYE SALMON IN THE FISHERIES OF UPPER C.I. ...1986...SCALE PATTE
S
PUB. TYPE: TFR
Date Received at HQ: 18/XII/87
Date Final Draft OK'd: 15/II/88* (*=review due date)
Date Published(ID#): ?
Hrs Spent on Reviews: 0
Mos to Rev. & Publish: 0
Reviewed By Reg. 1 [redacted]

AUTHOR(S): MARSHALL & QUINN II ID# 87- 5003
TITLE:
ESTIMATION OF AVERARE WEIGHT AND BIOMASS OF ... SALMON IN SE COMM HARV
PUB. TYPE: FRB

Date Received at HQ:	18/XII/87	
Date Final Draft OK'd:	22/II/88*	(*=review due date)
Date Published(ID#):	?	
Hrs Spent on Reviews:	0	
Mos to Rev. & Publish:	0	
Reviewed By Reg. 2	[redacted]	
Reviewed By Reg. 3	[redacted]	

AUTHOR(S): SHARR S ID# 87- 2018
TITLE: C & E STATISTICS FOR COPPER R. BERING R. & PWS ... SALMON 1985
PUB. TYPE: TDR

Date Received at HQ:	15/X/87	
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Hrs Spent on Reviews:	0	
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TOTAL # FULLY REVIEWED OUT OF ABOVE:	26
TOTAL # PUBLISHED OUT OF ABOVE LIST:	21
AVG PEER-EDITOR REVIEW HRS / REPORT:	16.75
AVG # MOS / REPORT TO REV. & PUBLISH:	5.733334

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The attached manuscript has been submitted for publication. We ask your assistance in judging its technical merit. Please address yourself to six basic questions:

(1) Is the paper understandable?

(2) Is the methodology sound?

(3) Are the results, discussion, and conclusions (if present) fully developed and are they adequately described and supported by the data?

(4) Has the author sufficiently integrated his findings with existing and contemporary knowledge?

(5) Does the text stand alone; has sufficient detail been presented in the text so that meaning is clear without the tables and figures?

(6) Is the information sufficiently relevant to warrant publication?

You are, of course, free to range as widely in your commentary as you wish, but you need not concern yourself with matters of style or format. These will be checked by the editor. Use the following editorial symbols where appropriate.

^ Insert a word, number, or short phrase.

¶ or No¶ Paragraph or no paragraph.

 Merge or integrate portions of text or with suggested new wording.

 Use line through words to be deleted.

Please make your criticisms constructive and avoid derogatory comments. It will be helpful to both the author and the editor if you will point out the strong points of the paper, as well as its weak ones.

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DIVISION OF COMMERCIAL FISHERIES
MANUSCRIPT REVIEW[a]

I.D.# _____. AUTHORS: _____

TITLE: _____

TYPE OF PUBLICATION: _____

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Date Review Completed: ___/___/___. Begin your review in the space above and/or attach other sheets as necessary. See other side for review instructions. Send the completed review to headquarters Editor. Do NOT send to the author. Your name above will be whited out in copies sent to the author by the Editor.

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OF _____ OF REPORT # _____

A target date of _____ was set for completion of your _____ of draft report #_____. This draft report was sent to you with a cover memo dated _____. Did you receive this? If so, please indicate in the space below when you expect to be able to complete this assignment. If you have questions, contact me (465-4250); otherwise please provide the information requested and return this page to me as soon as possible.

Robert L. Wilbur, Editor

COMMENT ON EXPECTED DATE OF COMPLETION:

U.S./Canada Program Status

Discussion Leader: Cantillon

Items:

1. The funding level has probably peaked.
2. We lost 1.5 million G.F. dollars to State budget cuts that were picked up by U.S./Canada over the last two years.
3. FY 87 funding = $3,180,400; FY 88 funding is not yet known.
4. We need to look at current programs and set priorities for future funding.
5. Transboundary River Fisheries - a 5 yr. annex has been established.
6. Boundary area annexes will be open for negotiation again next year.
7. Chinook annex will also be open next year.
8. A news release will be coming out that will outline the annex agreement points for the fishermen.
9. Chinook quotas (1988) will be the same as for the 1987 season. Working groups have been established to look at chinook quotas, the re-building schedule, and fishery-induced mortality problems.
10. Chinook catch allowances considered for the U.S. would probably have to be mirrored in N. Canada waters.
11. A U.S. equity work group has been formed to look at interceptions and balance of catches. Canada is expected to raise the subject again.

Project Operational Plans (POPs)

Discussion Leaders: Gunstrom, Rigby

Items:

1. The Region will require updated POPs for all projects that will be active in 1988.

2. Headquarters has no defined POPs review process, no time schedule.

3. There are over 200 POPs for the Division, statewide.

4. In the future HQ may require a shorter format for informational purposes.

5. Clear "Objective" statements have been a problem in many POPs reviewed to date.

Vessels Scheduling, Management

Discussion Leaders: Muir, P. Larson

Items:

1. Vessels operations are now under control of the Region, including scheduling and maintenance.

2. Two large vessels - Steller (Petersburg), Sundance (Juneau).

3. We still have the vessels shop at the Subport for small vessels maintenance.

4. We may eventually assign unmanned vessels to the Areas.

5. The Region has been allocated operational costs for the vessels.

6. HQ submits an annual C.I.P. request for major vessels maintenance.

7. Larson - We would like to give vessel captains project leader status, to allocate funds, etc.

   - Develop "Vessel Operational Plans" (VOPs).

   - Develop annual vessel reports: days at sea, maintenance, days in port, etc.

   - Create new position classes for boat officers.

   - Boats will be repainted, probably blue, to look like State ferries.

8. Sundance crew will supervise vessels shop.

9. We no longer have an outboard motor repair shop. The old shop is used for storage only.

10. We need to look at future equipment needs.

11. We need to look at future vessel needs.

12. Paul will seek another evaluation on the Steller re stability.

13. We need auxillary pumps on vessels.

14. We need safety updates on vessels and equipment checks.

MANAGEMENT/RESEARCH NEEDS AND PRIORITIES

Review: Coho and Chinook Predation on Pink Salmon

Review Leader: Hofmeister

Items:

1. SSRAA - permitted to release up to 5 million coho smolts annually at Neets Bay. They have been releasing 2 million (concern is for predation on pink salmon fry).

2. A study down south showed a reduction of 6 pink salmon adult returns for each coho smolt released.

3. Our studies were conducted in 1985, 1986 & 1987.

4. Predation dropped way off towards the last of May.

5. 1987 - predation lasted til mid-June (there were lots of fry in 1987).

6. Releases have been on June 1.

7. Consumption Range: May 8 - June 1 = 0.6 - 0.18 pinks per day;
   June 1 - 28 = .18 pinks per day.

8. Chinook Study: Carrol Inlet 1987
   - Kings did not eat any pink fry (262 kings caught).
   - Behm Canal 1986 & 87 - No predation on pinks.

9. June 1 release date is okay with AMBs.

10. No plans to continue study.

Review: Pink Salmon Escapement Calibration and Forecasting

Review Leaders: Jones, Dangel

Items:

1. Escapement Calibration and Stream Life Studies.

   - Program was conducted in 1986 & 1987 at Pleasant Bay Creek, Black Bear Creek, Kadashan River, and Sashin Creek.

   - Average stream life for all weirs declined from a high weekly average of 30 days early in the runs to a low weekly average of 4-5 days near the end of the run.

   - Comparisons of aerial and foot estimates and actual pink salmon present showed that surveyors estimated about half of the actual number of salmon, with considerable variation between observers.

   - Experienced surveyors were fairly consistent in their relative error.

   - Recommend continued study in order to calibrate surveyors and monitor streamlife.

2. Forecasting

   - There is a strong relationship between escapements and subsequent returns in S.S.E. and the outercoast in District 113, but not in N.S.E.

   - Escapement alone won't work for forecasting or spawner/recruit analysis.

   - Preemergent studies provide the best biological data for consistent, year-to-year information re brood survival during the critical early fresh water life stage.

Review: Pink Salmon Sex Ratio Studies & Management Applications

Review Leaders: Hofmeister, Van Alen

Items:

1. Studies were conducted from 1981-87.

2. No clear trends in % males in a district.

3. Some "noise" from overlapping stocks (e.g., early, middle, late).

4. District 3 - We're fishing the latter half of the run.

5. We're not fishing until the end of the run in the south end. The percentage of males goes up toward the end of the season because of late runs coming in.

6. G.N. data is selective for males. More males are caught than females.

7. Unbalanced sex ratio in the catch probably means an unbalanced sex ratio in the creeks, which is no particular problem in a large year, but it could be in a lean year. Maybe we should fish to catch more males by fishing harder earlier, or aim for a 50:50 sex ratio (?). We are presently catching more females and thus altering the sex ratio unintentionally.

8. Are sex ratios 50:50 in the returns prior to fishing? In Sashin Creek over the years - yes (Jones).

9. Looks like pink salmon can be sexed by the ratio of the length of the adipose fin to the length of the fish (Hofmeister).

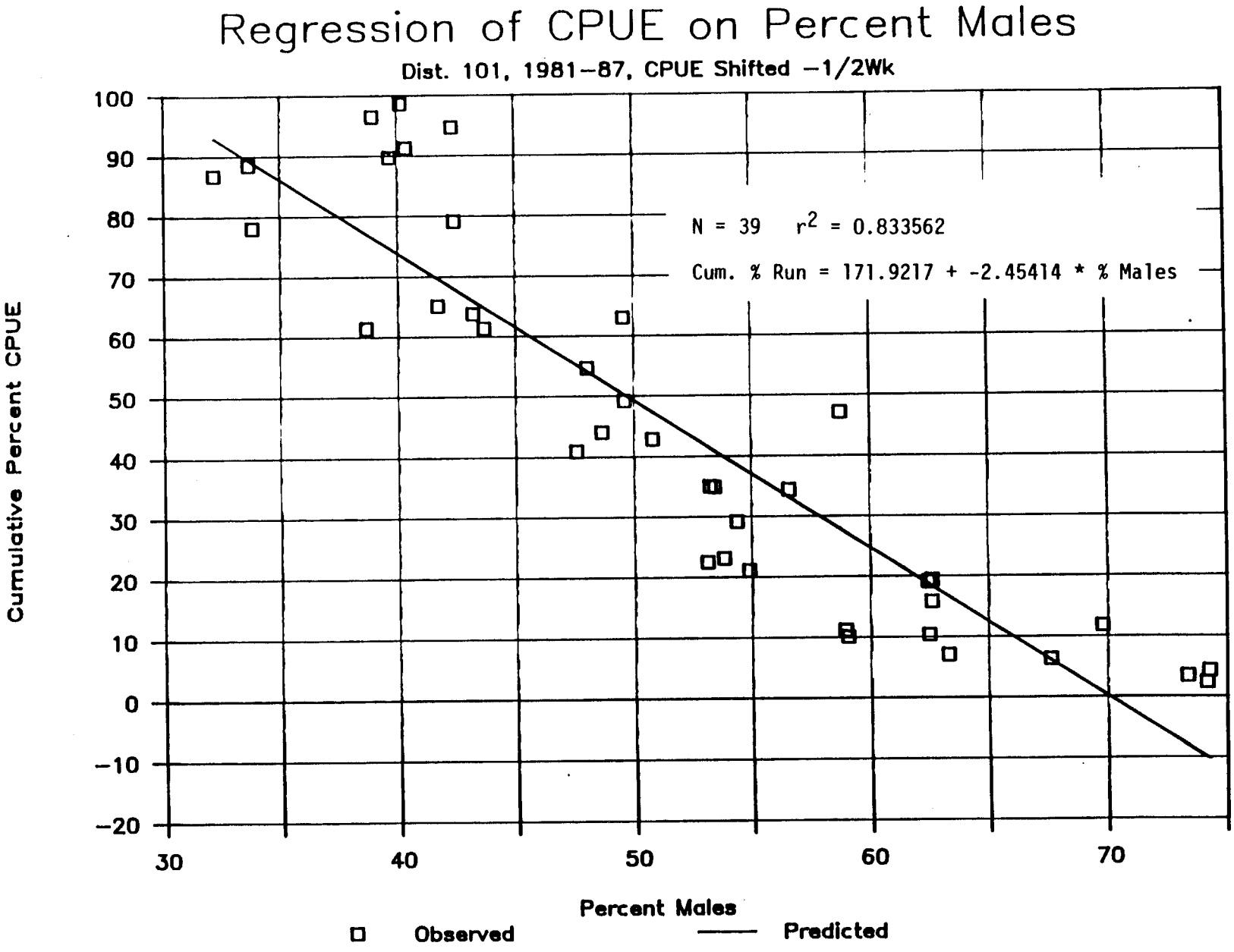
10. Simulation modeling indicates that a run is half over when sex ratio = 50:50 unless extreme differences exist in timing of early, middle, and late runs (Van Alen).

11. Purse seine CPUE (catch-per-boat-day) is the best indicator of run progression.

12. Graphs - Show that we can predict run timing and run strength from a plot of the sex ratio and historical migratory timing on standardized dates.

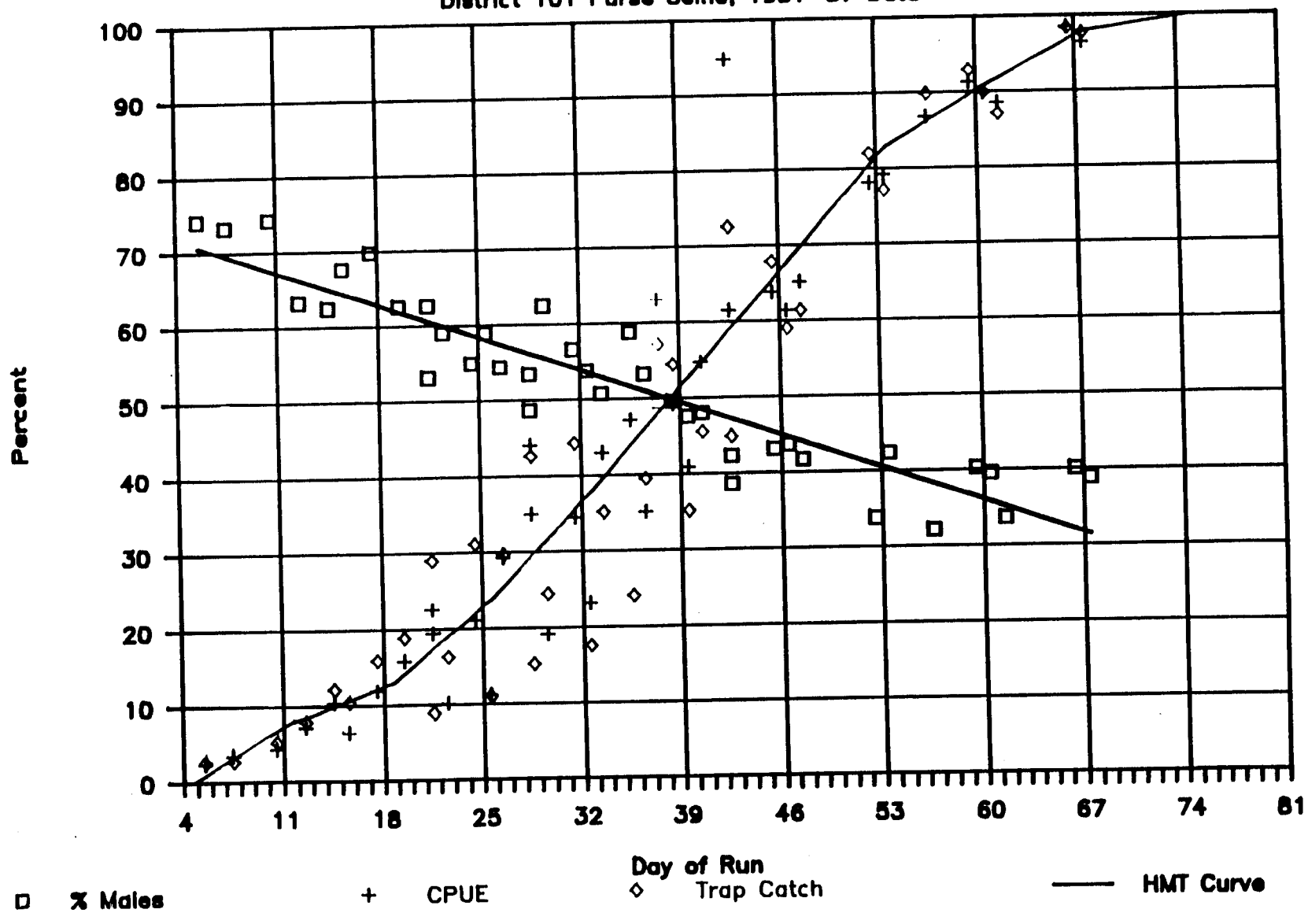
13. Stepwise regression analysis should be employed to predict the proportion of the run to date using date, sex ratio, CPUE, fish length, maturity, etc., as input variables.

14. Seem to be trends in migration - older fish before younger, larger before smaller, males before females.


Regression of CPUE on Percent Males
Dist. 101, 1981–87, CPUE Shifted –1/2Wk
N = 39 r2 = 0.833562
Cum. % Run = 171.9217 + -2.45414 * % Males
Cumulative Percent CPUE
100
90
80
70
60
50
40
30
20
10
0
–10
–20
30
40
50
60
70
Percent Males
Observed
Predicted

Prediction Of Run Timing From % Males

District 101 Purse Seine, 1981–87 Data



Region Position on Developing Fisheries

Discussion: Staff

Items:

1. We have little, or no data base for developing fisheries in the Region: sea urchins, sea cucumbers, geoducks, kelp.

2. A demersal shelf rockfish plan is in preparation in a fishery management plan format.

3. Marketing patterns and constraints often dictate the course of a new fishery.

4. We have tried to take a conservative approach to developing fisheries until we can develop a data base. This is often limited by funding availability. A problem arises, however, in that the staff can't defend a low harvest level without a data base (catch 22!).

5. Maybe we should develop a special permit for underdeveloped finfish. Staff cannot presently limit miscellaneous fish catches; they can on shellfish.

6. One million lbs. of sea urchins were harvested in the Ketchikan area in the first two years. No harvesting lately (last few months). Floating processor is thinking of coming up who can harvest 150,000 - 200,000 lbs. per week.

7. Have harvested approximately 17,000 lbs. of geoducks on Gravina Island so far this year.

8. Approximately 100,000 sea cucumbers have been harvested in S.S.E. so far.

9. Maybe we should establish management plans, developed on a statewide basis, which would involve HQ staff for assistance to the regions.

10. We need to prioritize our programs in order to assign people, funds, and time for information collection on developing fishery species.

11. Fish & Wildlife Protection won't monitor developing fisheries.

12. We will need a large manned vessel for one month if we wish to survey a new geoduck area. Dennis to work up a funding proposal.

13. We need a two-part management approach:

    a. Basic Regional Management.
    b. Proposal for long-term fisheries development.

14. Barry will be submitting a permit requirement proposal for finfish for the Board next fall.

15. We need to review geoduck and sea urchin plans and we need to look at developing a long range sea urchin proposal.

16. There are log books for all shellfish fisheries.

17. We need a shellfish assistant in Ketchikan at the FT III level.

18. Kelp - No entry permit required, just a misc. permit.
    - Most kelp is harvested in District 103 & 104 - all exported to PWS for herring roe on kelp (22 ton harvest in 1987).
    - We have no standing crop inventory on kelp in the region.

19. Blankenbeckler and Koeneman are to prioritize their project requirements for the coming season.

Team Approach to Shellfish Management/Research

Discussion Leader: Koeneman

Items:

1. Port sampling is a logical activity for a coordinated effort, to include Stock Biology, groundfish and shellfish.

2. We need to establish a time schedule re sampling and laboratory work in order to coordinate personnel and tasks. Ben, Tim, Barry and Dennis to coordinate.

Region Position on Mariculture

Discussion: Staff

Items:

1. Non-indigenous species should not be allowed.
2. Is there a Division policy? Gunstrom will contact Headquarters.
3. More communication is needed with the new ADF&G mariculture staff.

Stream Monitoring Committee Report; SWAT Approach

Discussion Leader: Gunstrom

Items:

1. Handout/Report - Ad Hoc Committee on Stream Monitoring, Meeting Minutes, January 15, 1988.

2. The ready response (SWAT) team approach to fish kills (for whatever reason) was approved by staff concensus. AMBs and other division supervisory staff will be consulted by Gunstrom re designee participation.

Ad Hoc Committee On Stream Monitoring

Meeting Minutes

January 15, 1988

The Ad Hoc Committee on Stream Monitoring, a sub-unit of the Stream Subgroup of the Alaska Working Group on Cooperative Forestry/Fisheries Research, held its first meeting on January 15, 1988 in Juneau. The meeting was chaired by Gary Gunstrom (ADF&G). After some discussion it was clarified that the purpose and charge of the Ad Hoc Committee is:

> To investigate the cause of summer salmon kills in S.S.E. Alaska and to determine if logging affects their occurrence and magnitude.

It was decided that the approach of the committee would be to compare fish kill data with stream temperatures, stream flow data, tidal flow data, and watershed characteristics of the fish kill sites to obtain background information on conditions related to fish kills and to see if any environmental relationships are apparent. The goal of the study undertaken by the committee would be to establish a monitoring system in S.S.E. Alaska which would, hopefully, involve paired (logged and unlogged) sample sites, the sites having been chosen as a result of criteria developed from study of the background information.

Committee assignments for background information preparation was as follows:

Ann Puffer	- Compile available stream temp., stream flow and tidal data.
Dave Gibbons	- Map known summer fish kills.
Steve Elliott	- Compile watershed characteristics of fish kill sites.

Ann Puffer (F.S.) informed the committee that she has already requested available water temperature and flow data for Prince of Wales and other available stream systems, monitored by U.S.G.S., from its Anchorage office. She will also try to obtain available long-term tidal records.

Although DEC was not represented at the meeting, it was the group consensus that once the monitoring system program sites were selected, DEC should undertake the actual monitoring, data collection and analysis.

The committee's next meeting will be held during the week of February 29, in Juneau.

Attachment: Membership/Attendance List

Ad Hoc Committee On Stream Monitoring

Membership List

Name	Affiliation
Gary Gunstrom*	ADF&G, Comm. Fish. Div.
Steve Elliott*	ADF&G, Sport Fish Div.
Rick Reed	ADF&G, Habitat Div.
Dave Gibbons*	USFS
Ann Puffer*	USFS
Dave Sturdevant	ADEC
Rick Harris	Sealaska Corp.
Owen Graham	~~Alaska Loggers Assoc.~~ LPC
Don Kinney	Alaska Loggers Assoc.
K Koski	NMFS, Auke Bay Lab.
Mike Murphy*	NMFS, Auke Bay Lab.
Rick Smith*	Forest Sciences Lab.
Pam Porter*	Forest Sciences Lab.

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* Present at January 15, 1988 Meeting

Sockeye Limnological Studies

Discussion Leaders: Barto, Marshall

Items:

1. FREDD started lake enhancement studies in 1979; there were 12 projects ongoing in the Region in 1987.

2. Calculation of a lakes sockeye production is based on its euphotic volume (EV).

   1 EV = 1,000,000 m^3 = 110,000 fry = 2,500 adults

3. Handout - limnological and production data for selected Southeastern lakes.

4. Transboundary river system lakes - Limnological studies have been conducted on the Lituya Lake on the Stikine River and Tatsemenie Lake on the Taku River system. Results to date are available in the U.S./Canada Transboundary River reports.

5. Chilkat/Chilkoot Lakes Limnological Studies

   Beginning in May 1987, the ADF&G-FRED Division, ADF&G Commercial Fisheries Division and Northern Southeast Regional Aquaculture Association (NSRAA) initiated a multi-year cooperative study to investigate the current sockeye salmon production from Chilkat and Chilkoot Lakes. The results of this study will attempt to maximize sockeye salmon production from these lakes.

   Limnological sampling occurred monthly at these two lakes between May and November, and hydroacoustic surveys were conducted at each lake during May, August, and October. The purpose of this sampling was to document the temporal trophic conditions and the rearing juvenile sockeye populations of the lakes.

   The information generated from the first field season was analyzed using the empirical sockeye carrying capacity model developed by the ADF&G-FREDD Limnology Section for Alaskan lakes. This model is based on determining the euphotic volume, the existing zooplankton forage food base, existing nutrient levels, and existing in-lake rearing fry densities. The information, generated for specific lakes, is used to document the existing lake fry production and predict the lakes production potential at its optimal level.

   The preliminary analysis of the 1987 field data indicates that the current fall fry production level at Chilkat Lake (1.2 million fry) is below the predicted production potential (5.5 million fry) calculated for this lake. On the other hand, the current fry production level (1.4 million fry) for Chilkoot Lake almost agrees exactly with our predicted value (1.39 million fry).

In addition to the fall fry estimates, a potential adult production estimate can also be generated from this empirical model. The predicted adult production levels are 417,500 for Chilkat and 105,000 for Chilkoot. This does not agree with the current observed adult production information collected by the Commercial Fisheries Division. The observed adult 7-year production is 193,156 for Chilkat and 270,147 for Chilkoot. This data indicates that there may be some natural factor effecting the fry-to-adult survival that we have not witnessed in other areas.

While this project has produced useful data on these specific systems, we should view this as representing only the first year of a multi-year study. The results from this first year should therefore be viewed as preliminary. In natural lakes it is not uncommon to observe significant production differences from brood-year to brood-year.

Therefore, it is our recommendation to continue this project to be consistent with the original plan as a multi-year interagency cooperative effort. This will allow the predicted production potentials to be compared from year-to-year. From this information it will be possible to specifically address strategies to achieve optimal production from these systems.

Table 1. Estimated sockeye salmon production capacity for northern Southeast Alaska lakes investigated during 1987.

Lake	Surface Area (km^2)	Euphotic Zone Depth (m)	Euphotic Zone Volume ($\times 10^6 m^3$)	Estimated Fry Production Capacity ($\times 10^6$) Spring	Fall	Estimated Smolt Production Capacity 1/ ($\times 10^6$)	Estimated Adult Production Capacity
Chilkat	9.8	17.0	167.0	18.37	5.51	3.84	417,500
Chilkoot	7.0	6.0	42.0	4.62	1.39	0.97	105,000
Crescent	3.3	9.0	30.0	3.30	0.99	0.69	75,000
Tatsaminie	16.0	20.0	320.0	35.20	10.56	7.36	800,000
Situk	4.1	10.0	41.0	4.51	1.35	0.94	102,500
Mountain	0.8	9.0	7.0	0.77	0.23	0.16	17,500

1/ Personal communication - Gary Kyle

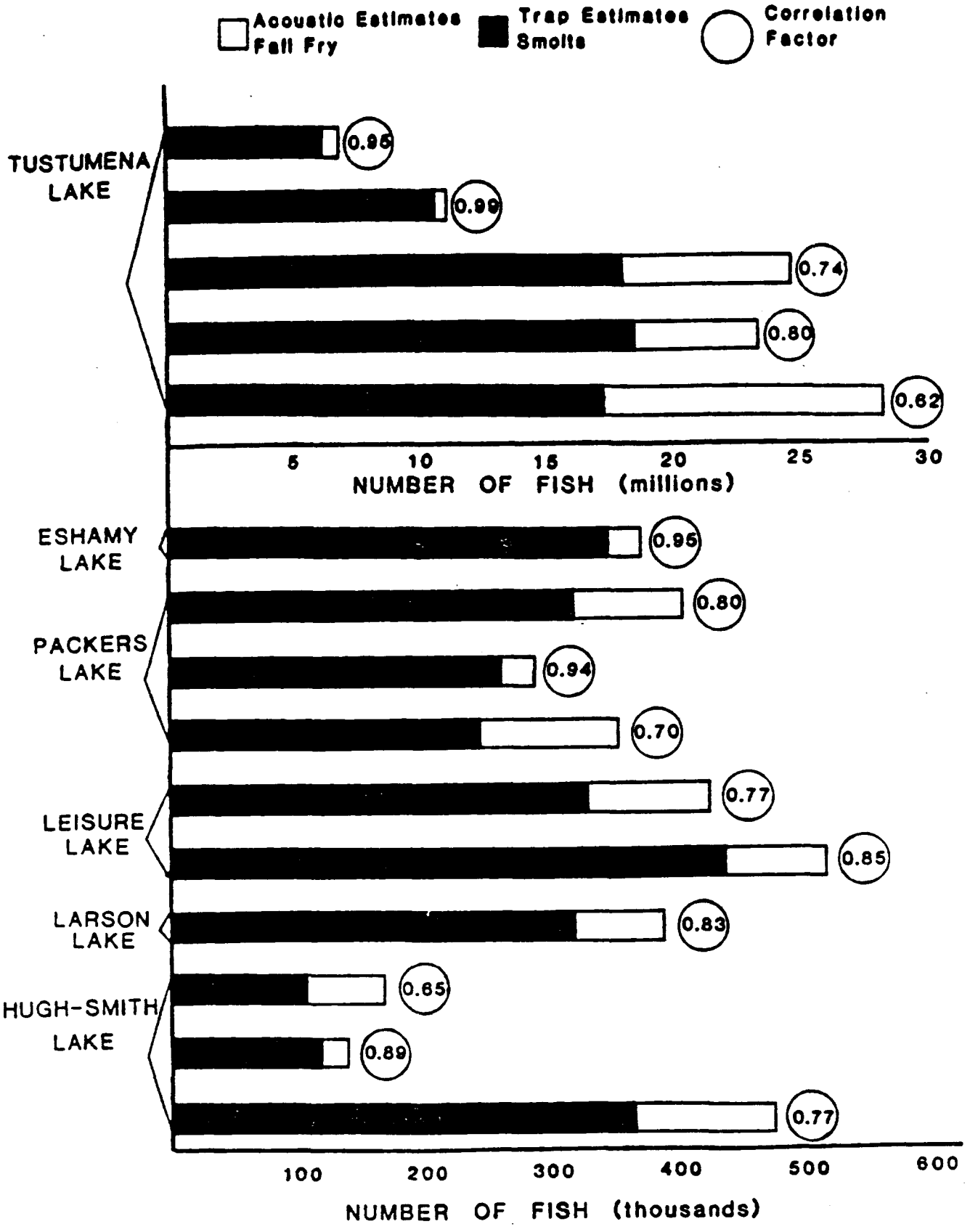
Acoustic Estimates
Fall Fry
Trap Estimates
Smolts
Correlation
Factor
TUSTUMENA
LAKE
0.95
0.99
0.74
0.80
0.82
5
10
15
20
25
30
NUMBER OF FISH (millions)
ESHAMY
LAKE
0.95
0.80
PACKERS
LAKE
0.94
0.70
LEISURE
LAKE
0.77
0.85
LARSON
LAKE
0.83
HUGH-SMITH
LAKE
0.65
0.89
0.77
100
200
300
400
500
600
NUMBER OF FISH (thousands)

Table 2. In-lake rearing fish population estimates for 1987 at Chilkat, Chilkoot and Crescent lakes based on hydroacoustic and tow net surveys.

Lake	Survey Date	Hydroacoustic Mean Fish Population Estimate	Population Species Composition from tow netting				
			O. nerka	O. kisutch	S. malma	G. aculeatus	Cottus sp.
Chilkat	5/17	3,403,400	1,558,757	-	-	1,844,642	-
	8/21	11,458,000	80,206	-	-	11,349,393	22,916
	10/28	7,282,900	1,194,396	-	-	6,030,241	48,263
Chilkoot	5/13	1,320,000	1,320,000	-	-	-	-
	8/18	1,289,000	1,289,000	-	-	-	-
	10/30	1,850,500	1,417,483	-	9,253	312,735	111,030
Crescent	10/12	66,400	65,785	305	305	-	-

Table 3. Age, length and weight results from tow net sampling at Chilkat, Chilkoot and Crescent lakes, 1987.

Lake	Survey Date	Species	No. of Fish Captured	Age 1/	Mean Length (mm)	Mean Weight (g)
Chilkat	5/17	O. nerka	32	0	48.7	1.3
			5	1	68.0	3.4
		G. aculeatus	45	NS	48.6	2.3
	8/21	O. nerka	12	0	37.9	0.7
		G. aculeatus	1,672	NS	83.0	7.2
	10/28	O. nerka	36	0	39.2	0.7
			2	1	77.0	4.4
		G. aculeatus	192	NS	83.4	6.3
Chilkoot	5/13	O. nerka	99	0	38.7	0.8
			1	1	70.0	3.4
	8/18	O. nerka	55	0	34.4	0.5
	10/30	O. nerka	134	0	40.2	0.7
			7	1	58.4	1.8
		G. aculeatus	32	NS	58.7	2.3
Crescent	10/30	O. nerka	153	0	36.0	0.5
		O. kisutch	1	2	96.0	12.1

1/ NS - not sampled

Table 4. Estimated adult production based on observed fall fry density and smolt length.

Lake	Observed Fall Fry Density/EV	Predicted Smolt Production/EV	Percent [1] Smolt Age Composition	Smolt Length (mm)	Estimated Smolt to Adult Survival (%)	Estimated Adult Productio
Chilkat	7,152	5,006	Age 1 25 Age 2 75	100 110	27.1 30.5	248,000
Chilkoot	33,750	23,625	Age 1 90 Age 2 10	65 70	10.7 12.8	108,000
Crescent	2,193	1,535	-	-	-	-

1/ Personal communication - Scott McPherson

Table 5. A comparison of estimated adult production based on the euphotic volume (EV) model, fall fry hydroacoustic estimates and smolt length data, and observed adult production.

Lake	Production Estimate Based on EV Model	Production Estimate Based on Observed Fall Fry and Smolt Length	Observed Production (1976-1982) [1]
Chilkat	417,000	248,000	193,156
Chilkoot	105,000	108,000	270,147 (6,400/EV)

1/ Personal communication - Scott McPherson

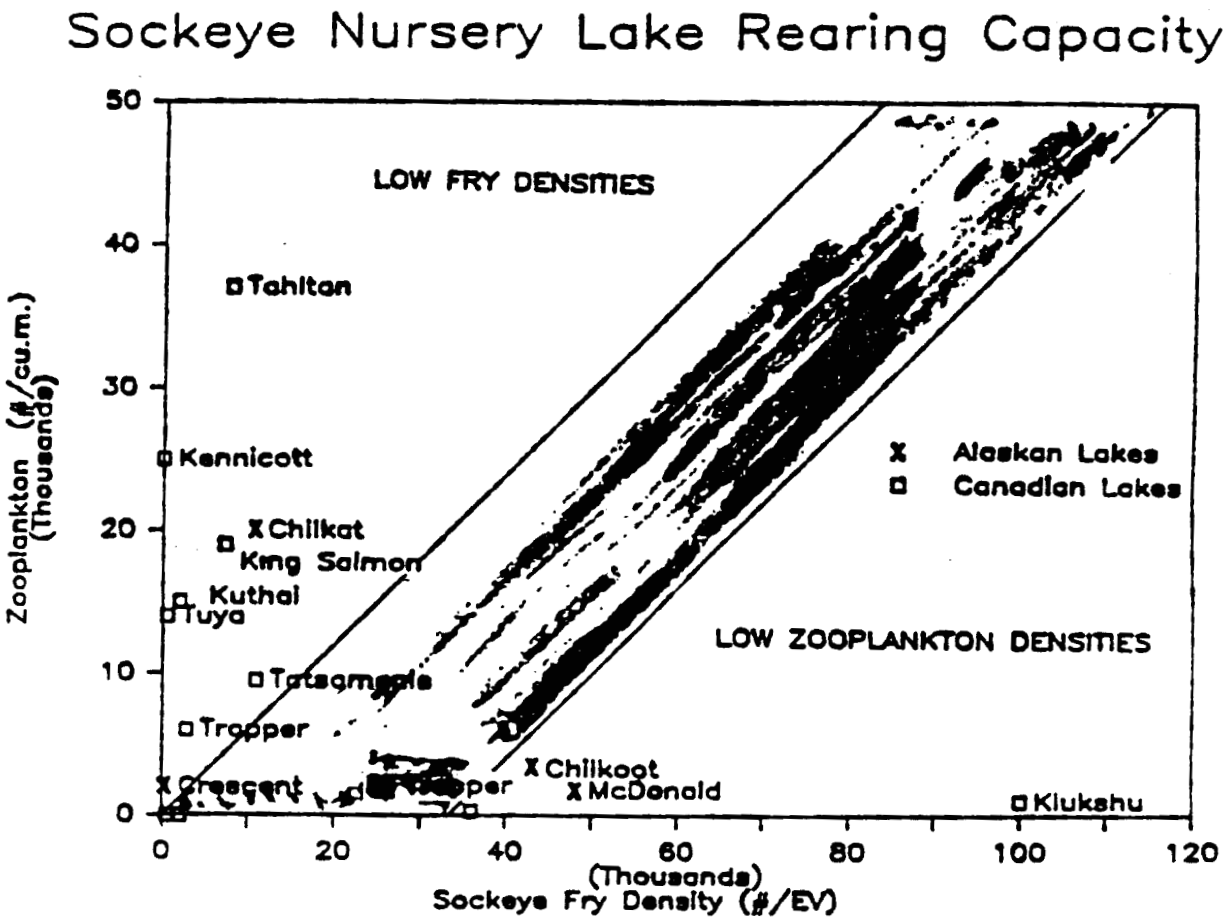

Figure 5. Sockeye nursery lake rearing capacities showing fall (August-September) fry and macrozooplankton (>500 um) densities for Canadian systems and fall (September) fry and seasonal macrozooplankton (>400 um) densities for Alaskan systems.

Sockeye Hydroacoustic Studies

Discussion Leader: Oliver

Hydroacoustic and tow net surveys to estimate rearing sockeye fry abundance in limnetic areas of lakes were conducted at Luck, Salmon Bay, Red Bay, Warm Chuck, Klackas and Hetta Lakes in southern Southeast Alaska. Hydroacoustic surveys to estimate biomass were conducted at night along 5 or 6 transects perpendicular to the long axis of the lake. Tow netting to estimate species composition of the biomass estimate (generally stickleback and sockeye) were conducted along the long axis of the lake. A submersable photometer and bathyetric maps were used to calculate the euphotic volume of the lake. A plankton net was used to sample prey species. The primary objective of this study was to evaluate alternate methods for determining sockeye production in the numerous relatively small systems of Southeast Alaska. A secondary objective was to begin to develop methods of determining optimum sockeye loading densities. We were generally successful in combining the hydroacoustic sampling with our normal escapement sampling although a lack of adult fish due to very low and warm water simplified matters. Difficulties were experienced in obtaining consistent tow net data which will result in an unacceptable level of variability in the species composition breakdown of the hydroacoustic biomass estimate.

Taku River Run Reconstruction

Discussion Leader: McGregor

Management of the Taku River salmon resource is complicated by harvest sharing agreements between the United States and Canada as specified in the annexes of the Pacific Salmon Treaty. ADF&G has two ongoing projects to assist management in complying with Treaty Annex agreements. An adult mark-recapture project on the lower Taku River is used to provide in-season estimates of the sockeye salmon escapement and a scale pattern analysis (SPA) project is run to estimate the stock composition of District 111 gillnet harvests of sockeye salmon.

The tagging program has been oriented to provide in-season escapements estimates for sockeye and post-season escapement estimates for pink salmon. This study has been operated since 1984 on a joint basis with the Canadian Department of Fisheries and Oceans. The sockeye escapement has met or exceeded interim escapement goals for the drainage every year since 1984, and the total run has varied little between years (137,000-192,000). Contrastingly the pink salmon escapement has been highly variable during these years. In 1987 the project was operated later into the season to develop an estimate of the coho salmon escapement.

District 111 SPA studies have been refined in recent years to differentiate six stock groups in the catch, four from the Taku River drainage and two from Port Snettisham drainages. Weekly estimates of the stock composition are developed each week of the season. The contribution of Snettisham sockeye to the harvest in District 111 was higher in 1987 than in past years. Results have shown that the Mainstem Taku River stock group is the principal contributor to the catch. This group, comprised of fish that spawn in mainstem and slough areas along the lower Taku, Nakina, and Nahlin Rivers, was previously thought to represent only a minor portion of the Taku sockeye run.

Tagging and SPA studies are providing results that should permit more stock specific management in the future. Enhancement projects planned for the Taku River drainage may effect and complicate these stock assessment programs in the future.

Stikine River Sockeye Studies

Discussion Leader: Jensen

In season sockeye stock composition estimates for Alaska's Subdistricts 106-41 and 106-30 and Canada's Stikine River commercial fisheries were made in 1987. In-season estimates for these fisheries and for District 108 will be made again in 1988.

District 104 sockeye stock compositions will be estimated in-season for the first weeks of the fishery. The contributions of the Alaska and British Columbia stock groups can be estimated with >90% classification accuracy based on the width of the first freshwater and marine zones. Since this does not require digitizing equipment, it could be done in Ketchikan or Craig-Klawock by a trained technician. Ben Van Alen developed the technique for separating hatchery and wild coho stock and is writing a paper describing the method in detail.

Some form of mass marking techniques needs to be developed for any enhanced sockeye that might be harvested in appreciable numbers in Alaska's Districts 106 or 108. If new, unmarked stocks are introduced to these fisheries the effectiveness of scale pattern analysis may be greatly altered as outline below:

1) The pattern falls in between those of current groups and over-all separability of current stocks drops, rendering scale pattern analysis unusable.

2) The pattern is distinct and classifiable and scale pattern analysis continues as before with 6 stock groups instead of 5.

3) The pattern classifies as a current Alaska stock.

4) The pattern classifies as a current Canadian stock.

5) The pattern classifies as a transboundary Stikine River stock.

Scenario 2 is probably the least likely of the possible situations. A Tuya sockeye group would likely classify as Tahltan due to parent stock and rearing environment. If the Tahltan group is indistinguishable from the Tuya group the potential for decimation of the Tahltan group is high (problems exist even if they are separable). If an enhanced Virginia Lake run (run size goal 100,000) had a pattern that classified as either of the transboundary groups, even a relatively low contribution to the fishery (5 to 15% of harvest) could force closure of Districts 106 and i108 under the current U.S./Canada treaty annex. The mass marking technique would need to be applied to all fish in order to be used in conjunction with scale pattern analysis, thus coded-wire tagging is impractical. These are just a couple of scenarios. There may be no problem; however, introduction of unmarked enhanced fish must be carefully weighed in light of the potential deleterious effect on stock separability.

Lynn Canal Sockeye Studies

Discussion Leader: McPherson

Summary

As in the past 6 years, an intensive stock ID program was again in place for Lynn Canal sockeye. The catch of approximately 415,000 was comprised of 326.5K (79%) Chilkoot Lake fish and 70K Chilkat Lake fish. This was the largest catch of sockeye in Lynn Canal since at least 1940. Inseason forecasting models built from historic stock migratory timing curves enabled us to predict the total return of Chilkoot to within 15% by the time only 25% of the return had occurred. We predicted the Chilkat catch to within 15% by the time 15% had occurred. The identification of the strong Chilkoot return and weak Chilkoot return enabled the Haines Area Management Biologist to enact appropriate time and area adjustments. Escapements were 95K to Chilkoot and 49K to Chilkat. Total return to Chilkoot was 421.5K and 118K to Chilkat. This year we again experienced enumeration problems at Chilkat weir due to flow reversals. Flow diversion by way of rebuilding the dike above the Chilkat Lake outlet along the Tsirku River would improve enumeration opportunities at Chilkat weir.

Subsistence Permits, 1988

Discussion Leader: P. Larson

Items:

1. Permits issued out of Juneau in 1987 were good for the whole season; specified seasonal limits.

2. Primarily concerned with sockeye.

3. There is no enforcement - catch limits may not mean anything.

4. We are considering implementation of all-season permits region-wide in 1988, but with some area-specific limitations.

5. Ketchikan issued approximately 1,400 permits last year with about a 60% return.

6. About 4,000 permits were issued in the Region last year.

7. We could use the old time/area permits in conjunction with the all-season permits.

8. There is presently no subsistence catch monitoring.

9. Imamura: the all-season system seemed to result in better reporting, more reliable data.

Sockeye Escapement Committee Report

and

Region Sockeye Species Approach

Discussion Leader: Gunstrom

Items:

1. An Ad Hoc Committee on Escapement Goals was established last spring following the Regional Coho Workshop.

   - One meeting so far.

   - Draft questionnaire prepared.

   - Bergander memo of November 13, 1987, with attachments, enclosed.

   - EV measurements should be considered as a means to calculate escapement goals, though the method won't work if a lake is spawning-area limited.

   - Surface area is not a reliable method of calculating escapement goals as it does not consider the euphotic volume.

   - AMBs are to identify sockeye producing lakes that are critical to their management concerns and foreward their lists to Bergander.

   - Staff is not presently concerned about a Regional management approach for sockeye.

MEMORANDUM State of Alaska

TO: Distribution

DATE: November 13, 1987

FILE NO.:

THRU:

TELEPHONE NO.: 465-4250

SUBJECT: Ad Hoc Committee Escapement Goals

FROM: Fred Bergander
Fisheries Biologist III
Commercial Fisheries Division
Douglas

A meeting of the Ad Hoc Committee on escapement goals for sockeye salmon systems was held in the Region I office, in Douglas, on October 20, 1987. In attendance were Mike Haddix (FRED Division), Mike Murphy (NMFS) and Fred Bergander (Comm. Fish.). This committee was mandated, in April of 1987, with the responsibility of 1) establishing a methodology for addressing escapements, 2) establishing a methodology for addressing escapement goals, 3) establishing criteria for classification of the 120 producing systems into the Region into large, medium, and minor producers, 4) classify systems to water type, e.g., clear, glacial, organically stained, 5) noting systems with special import to the U.S./Canada Treaty, 6) establish where possible desired escapement goals.

The initial discussion revolved around what data are available and the systems these data were collected from: primary, secondary, and tertiary production, survival from egg to fry, and adult survival from egg to fry data are available for Hugh Smith and McDonald Lakes. Adult escapement and total adult return data are available from Chilkoot and Chilkat Lakes; basic limnological and productivity studies are in progress for Chilkoot and Chilkat Lakes. Other systems for which weir counts of the escapement are available are Hetta Lake, Karta River, Naha River, Falls Lake, Redoubt Lake, Crescent Lake, Speel Lake, Klawock Lake, Salmon Bay Lake, RedFish Bay Lake, Red Bay Lake, Kegan Lake, Auke Lake, Tahltan Lake, and Little Trapper Lake.

The committee decided that the most practical method of establishing escapement goals for sockeye systems was to conduct limnological studies on index systems to determine the rearing capacity of these systems and back calculate to determine the escapement necessary to achieve the desired rearing population.

Measurements of the euphotic zone not already available should be conducted on all non-index systems and the desired rearing population for the index system that most closely matches the non-index system would be used to determine the escapement goals for these systems.

It will be necessary to categorize each of the sockeye systems in the Region. The criteria to be considered are 1) lake size, 2) drainage size, 3) water type: glacial, clear, or organically stained, 4) size of escapement: means of determining escapement; weir or survey 5) type of

spawning habitat: stream or beach, 6) limiting factors: spawning or rearing (this could be a subjective observation). Other issues considered worthy of consideration were: 1) U.S./Canada Treaty Implications? 2) Existing escapement goals and if so what are they and how were they derived, if known? 3) Any special concerns about this system? If so, what are they? 4) Harvest information: If known, what are the commercial, subsistence, and sport harvests on this stock? A questionnaire addressing these criteria is attached.

After escapement goals have been established for these systems, it will be necessary to have some means to determine if goals are being met. How will this be accomplished? Possibly these systems should be regionalized and prioritized within each region; the high priority systems receiving the attention.

Distribution

Mike Haddix, FRED Division
Mike Murphy, NMFS

Glacial Stained Clear

The following is a questionair designed to assist us in developing escapement goals for sockeye systems in Southeastern Alaska.

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage ~~(In acres)~~ (Sq. miles)	Water Type
Sockeye Cr.	101-11-10390	Nakat Lake	"	179	2	Stained
Fillmore Cr.	101-11-10790	~~Fillmore~~ Shrew L.		122	1.6	Clear
Tamgass Cr.	101-25-10250	Tamgass L.				
Hugh Smith	101-30-10750	Hugh Smith Lake		790	19.5	stained
Lucky Cove	101-41-10250	Lucky Cove Lower Lake		67	8	Stained
Mahoney Cr.	101-45-10160	Mahoney L.		166	5.4	Clear
Leask Cr.	101-45-10320	Leask L.		200	?	Stained
Salt Chuck	101-45-10380			92.5 ?	15	stained
Ward Cr.	101-47-~~10250~~ 10150?	Ward Lake		50	17	Stained
Checats Cr.	101-51-10050	Lower Checats L.		260	15	Stained
Bakewell L. Creek	101-55-10730	Bakewell L.		716	32	STAINED
		Badger L.		519	—	CLEAR
Unuk River	101-75-10300	~~Not Named~~ Primarily				Glacial
McDonald:	101-80-10680	McDonald L.		1037		STAINED
Short Cr.	101-80-10840	Reflection L.		759	25.5	Clear
Margaret Cr.	101-90-10390	Margaret L.		145		STAINED
Naha Bay River	101-90-10500	← Jordan L.		120		STAINED
		Heckman L.		395	45	STAINED
Helm Bay	101-90-10840	Helm L.		205	8	STAINED
Nichols Cr.	102-10-10600	Nichols L.		378	11.2	STAINED
Dolomi Cr.	102-20-10400	Paul L.		380	8	STAINED
Johnson Cove	102-30-10170	Johnson L. ~~Not Named~~		215	6.9	STAINED
Kegan Cr.	102-30-10670	Kegan L.		621	9.2	STAINED

Stream ? correct?

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (~~In acres~~) Sq. miles	Water Type
Miller L. Creek	102-30-10890	Miller L.		420	10	STAINED
Dora Bay	102-40-10330	Dora Lake		160	2.5	STAINED
Saltery Cove	102-60-10050	Not Named		80	1	STAINED
Old Tom Cr.	102-60-10240	Not Named		80	5.8	STAINED
Dog Salmon Creek	102-60-10380	Not Named		45	17.7	STAINED
Cabin Cr.	102-60-10420	Not Named				STAINED
Kina Cr.	102-60-10680	Kina Lake				STAINED
Karta River	102-60-10870	Karta L.		320	60	STAINED
		Salmon L.		1440	↓	STAINED
Salt Chuck	102-60-10950	Lake Ellen		85		STAINED
		Lake No. 3		35		STAINED
Thorne R.	102-70-10500	Angel L.		194	210	"
		Foot L.		30		"
		Thorne L.		280	↓	"
Not Named	103-11-10130	Not Named				
Hunter Bay East Head	103-11-10190	Not Named				
Klakas L. Creek	103-15-10270	Klakas L.		480	112	STAINED
Nutkwa Cr.	103-21-10080	Nutkwa Lagoon				
Keete Inlet	103-21-10180	Not Named?			3.1	STAINED
Eek Creek	103-25-10090	Eek Lake		110	7.7	STAINED
Hetta Lake Creek	103-25-10470	Hetta Lake		519	9.1	Clear
Kasook Cr.	103-40-10580	Kasook L.		62	1.9	STAINED

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Ratz Hbr. Creek	106-10-10100	Trumpeter L.				
		Big Lake.				
		Little L.				
Luck: Eagle Cr. Luck Cr.	106-10-10300	Luck Lake		480	26.6	Stained
Street Cr.	106-20-10100	Street L.				
Hatchery Cr.	106-21-10030	Hatchery L.				
Sweetwater: Hatchery Cr. Logjam Cr. Indian Cr.	106-30-10660	Sweetwater L.		1971	117	Stained
		Barnes L.		840	↓	↓
		Gale L.		360		
Salmon Bay Creek	106-41-10100	Salmon Bay Lake		1060	35	Stained
Red Lake Cr.	106-41-10300	Red Lake		400	42	Stained
Kah Sheets Creek	106-42-10100	Kah Sheets Lake		360		
Petersburg Creek	106-44-10600	Petersburg Lake				
Santa Anna Inlet Cr.	107-20-10100	Helen Lake				
Thoms Creek	107-30-10300	Thoms Lake				
Kunk Creek	107-30-10950	Kunk Lake				
Mill Creek:	107-40-10070	Virginia Lake				

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Tom Creek	107-40-10470	Tom Lake Campbell L.				
Stikine R.: Shakes Slough Red Slough Kikahe R. Andrews Cr Govt. Cr.	108-40-10150	Shakes L. Barnes L.				
Gut Bay	109-20-10070	Not Named				
Falls Creek	109-20-10130	Falls Lake				
Kutlaku Cr.	109-52-10350	Kutlaku L.				
Alecks Cr.	109-62-10130	Alecks L.				
Port Malmsbury Creek	109-63-10070	Malmsbury L.				
Taku River: 1)Sockeye Cr. 2)Fish Cr. 3)Yehring Cr. 4)Wright R.	111-32-10320	Swineford Lks. Wright L.				
Speel River	111-33-10300	Speel L.				
Whiting R.	111-35-10050	Crescent L.				
Auke Creek	111-50-10420	Auke Lake				
Mendenhall River	111-50-10500	Mendenhall Lake				
Basket Cr.	112-12-10160	Basket Lake				
Kook Cr.	112-12-10250	Kook Lake				
Pavlov R.	112-50-10100	Pavlov Lake				
Red Fish Bay	113-13-10010	Tumakof L.				

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Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Necker Bay	113-34-10050	(Not Named)				
Salmon Lake Creek	113-41-10315	Salmon Lake, Lucky Chance Lake				
Redoubt Lake Outlet	113-41-10440	Redoubt Lake			3161	
(Not Named)	113-52-10040	Lake Eva				
Sitkoh Cr.	113-59-10040	Sitkoh L.				
Takanis Cr.	113-92-10020	Takanis L.				
Surge Lake Creek	113-93-10010	Surge Lake				
Hoktaheen Creek	113-94-10010	Hoktaheen Lake				
Dundas R.	114-60-10800	(Not Named)				
Bartlett R.	114-70-10900	Bartlett L.				
Berg River	114-71-10320	(Not Named)				
Herbert R.	115-10-10350	Windfall L.				
Berners R.	115-20-10100	(Not Named)				
Chilkat R. 1)Chilkat R. 2)Klehini R. 3)Little Salmon R. 4)Kelsall R.	115-32-10250	Chilkat L. Mosquito L.				
Chilkoot R.	115-33-10200	Chilkoot L.				
East Alsek River	182-20-10100	(Not Named)				
Alsek R. 1)Alsek R.	182-20-10100	---				

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Black Bear Creek	103-60-10310	Black Lake			17	Stained
	non-anadromous	Black bear Lake		224	—	Stained
Klawock R.	103-60-10470	Klawock L.		2914	45	Stained
Chuck Cr.	103-80-10310	Warm Chuck L.		172	3.3	Stained
Tunga Cr.	103-90-10009	Tunga Lak? Stat. No?			3.6	Stained
Sarkar Cr.	103-90-10140	Sarkar L.		730	22.9	Stained
Naukati Cr.	103-90-10260	?			2.1	Stained
Tokeen Cr.	103-90-10690	Not Named			2.5	Stained
Karheen Cr.	103-90-10960	Karheen L.			5	Stained
Essowah Cr.	104-10-10050	Parrot L.		269	1.1	Stained
		Essowah L.		589	—	Stained
Devil Lake Creek	104-20-10300	Devil Lake,		557	2.25	Stained
		Little Devil L.			—	Stained
Welcome L. Creek	104-20-10350	Welcome L.		307	2.5	
Manhattan Arm Cr.	104-20-10100	Not Named				
Kushneahin Creek	105-20-10030	Kushneahin Lake				
Port Beauclerc L. Creek	105-20-10060	L. Beauclerc				
Tunehean Cr.	105-32-10040	Not Named				
Sutters Cr.	105-42-10140	Sutter L.		80	4.5	Stained
Shipley Bay	105-43-10020	Shipley L.		480	6.5	Stained

3)Cabin Sl.
4)Gines Cr182-30-12400 _____*

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Italio R.	182-50-10100	(Not Named)				
Situk River	182-70-10100	Situk L. Mountain L.				
Arnklin R.	182-70-12000	_____				
Lost River/ Tawah Cr.	182-80-10100	(Not Named)				

(cont.)

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Sockeye Cr.				
Fillmore Cr.				
Tamgass Cr.				No longer has Anadromous access to lake due to dam for hatchery water supply
* Hugh Smith				
Lucky Cove				
Mahoney Cr.				
Leask Cr.				
Salt Chuck				
Ward Cr.				
Checats Cr.				
* Bakewell L. Creek				- 2000
Unuk River				
* McDonald:				
Short Cr.				
Margaret Cr.				No Anadromous access. (fish pass to be constructed)
* Naha Bay River				
Helm Bay				
Nichols Cr.				
Dolomi Cr.				Paul lake - < 100 (1980)
Johnson Cove				3700+ (3 foot surveys 1980)
* Kegan Cr.				8696 (WIR 1982)

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Miller L. Creek	500+ [1980 (9/15/80)]			many redds in lake
Dora Bay				
Saltery Cove	Approx 100 [1980-87]			
Old Tom Cr.	100-200 [1980-87]			
Dog Salmon Creek	500 -			very heavy sub. use
Cabin Cr.	200+			
Kina Cr.				
* Karta River				
Salt Chuck				
Thorne R.				
Not Named				
Hunter Bay East Head				
Klakas L. Creek				
Nutkwa Cr.				
Keete Inlet				
Eek Creek				
* Hetta Lake Creek				
Kasook Cr.				

Black Bear
Creek

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
* Klawock R.				
Chuck Cr.				
Tunga Cr.				
Sarkar Cr.				
Naukati Cr.				
Tokeen Cr.				
Karheen Cr.				
Essowah Cr.				
Devil Lake Creek				
Welcome L. Creek				
Manhattan Arm Cr.				
Kushneahin Creek				
Port Beauclerc L. Creek				
Tunehean Cr.				
Sutters Cr.				
Shipley Bay				
Ratz Hbr. Creek				

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Luck:				
Eagle Cr.				
Luck Cr.				
Street Cr.				
Hatchery Cr.				
Sweetwater:				
Hatchery Cr.				
Logjam Cr.				
Indian Cr.				
* Salmon Bay Creek				
Red Lake Cr.				
Kah Sheets Creek				
Petersburg Creek				
Santa Anna Inlet Cr.				
Thoms Creek				
Kunk Creek				
Mill Creek:				
Tom Creek				
Stikine R.:				
Shakes Slough				
Red Slough				
Kikahe R.				
Andrews Cr				

Govt. Cr.

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Gut Bay				
* Falls Creek				
Kutlaku Cr.				
Alecks Cr.				
Port Malmsbury Creek				
Taku River: 1) Sockeye Cr. 2) Fish Cr. 3) Yehring Cr. 4) Wright R.				
Speel River				
Whiting R.				
* Auke Creek				
Mendenhall River				
Basket Cr.				
Kook Cr.				
Pavlov R.				
Red Fish Bay				
Necker Bay				
Salmon Lake Creek				
* Redoubt Lake Outlet				

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
(Not Named)				
Sitkoh Cr.				
Takanis Cr.				
Surge Lake Creek				
Hoktaheen Creek				
Dundas R.				
Bartlett R.				
Berg River				
Herbert R.				
Berners R.				
* Chilkat R. 1)Chilkat R. 2)Klehini R. 3)Little Salmon R. 4)Kelsall R.				
Chilkoot R.				
East Alsek River				
Alsek R. 1)Alsek R. 2)Emile Cr. 3)Cabin Sl. 4)Gines Cr.				
Italio R.				
Situk River				
Arnklin R.				
Lost River/				

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Tom Creek	107-40-10470	Tom Lake Campbell L.				
Stikine R.: Shakes Slough Red Slough Kikahe R. Andrews Cr Govt. Cr.	108-40-10150	Shakes L. Barnes L.				
Gut Bay	109-20-10070	Not Named				
Falls Creek	109-20-10130	Falls Lake				
Kutlaku Cr.	109-52-10350	Kutlaku L.				
Alecks Cr.	109-62-10130	Alecks L.				
Port Malmsbury Creek	109-63-10070	Malmsbury L.				
Taku River: 1)Sockeye Cr. 2)Fish Cr. 3)Yehring Cr. 4)Wright R.	111-32-10320	Swineford Lks. Wright L.				
Speel River	111-33-10300	Speel L.				
Whiting R.	111-35-10050	Crescent L.				815
Auke Creek	111-50-10420	Auke Lake				
Mendenhall River	111-50-10500	Mendenhall Lake				
Basket Cr.	112-12-10160	Basket Lake				
Kook Cr.	112-12-10250	Kook Lake				
Pavlov R.	112-50-10100	Pavlov Lake				
Red Fish Bay	113-13-10010	Tumakof L.				

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Necker Bay	113-34-10050	(Not Named)				
Salmon Lake Creek	113-41-10315	Salmon Lake, Lucky Chance Lake				
Redoubt Lake Outlet	113-41-10440	Redoubt Lake			3161	
(Not Named)	113-52-10040	Lake Eva				
Sitkoh Cr.	113-59-10040	Sitkoh L.				
Takanis Cr.	113-92-10020	Takanis L.				
Surge Lake Creek	113-93-10010	Surge Lake				
Hoktaheen Creek	113-94-10010	Hoktaheen Lake				
Dundas R.	114-60-10800	(Not Named)				
Bartlett R.	114-70-10900	Bartlett L.				
Berg River	114-71-10320	(Not Named)				
Herbert R.	115-10-10350	Windfall L.				
Berners R.	115-20-10100	(Not Named)				
Chilkat R. 1)Chilkat R. 2)Klehini R. 3)Little Salmon R. 4)Kelsall R.	115-32-10250	Chilkat L. Mosquito L.				
Chilkoot R.	115-33-10200	Chilkoot L.				
East Alsek River	182-20-10100	(Not Named)				
Alsek R. 1)Alsek R. 2)Emile Cr.	182-30-10100	---------				

3)Cabin Sl.
4)Gines Cr182-30-12400 _____*

Stream System	ADF&G Stream No.	Lake System	Non-Lake System	Surface Acerage	Drainage (In acres)	Water Type
Italio R.	182-50-10100	(Not Named)				
Situk River	182-70-10100	Situk L. Mountain L.				
Arnklin R.	182-70-12000	_____				
Lost River/ Tawah Cr.	182-80-10100	(Not Named)				

(cont.)

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Sockeye Cr.				
Fillmore Cr.				
Tamgass Cr.				No longer has Anadromous access to lake due to dam for hatchery water supply
* Hugh Smith				
Lucky Cove				
Mahoney Cr.				
Leask Cr.				
Salt Chuck				
Ward Cr.				
Checats Cr.				
* Bakewell L. Creek	- 2000			
Unuk River				
* McDonald:				
Short Cr.				
Margaret Cr.				No Anadromous access. (fish pass to be constructed)
* Naha Bay River				
Helm Bay				
Nichols Cr.				
Dolomi Cr.	Paul lake - < 100 (1980)			
Johnson Cove	3700+ (3 foot surveys 1980)			
* Kegan Cr.	8696 (weir 1982)			

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Miller L. Creek	500+ [1980 (9/15/80)]			many redds in lake
Dora Bay				
Saltery Cove	Approx. 100 [1980-87]			
Old Tom Cr.	100-200 [1980-87]			
Dog Salmon Creek	500 -			very heavy sub. use
Cabin Cr.	200+			
Kina Cr.				
* Karta River				
Salt Chuck				
Thorne R.				
Not Named				
Hunter Bay East Head				
Klakas L. Creek				
Nutkwa Cr.				
Keete Inlet				
Eek Creek				
* Hetta Lake Creek				
Kasook Cr.				

Black Bear
Creek

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
* Klawock R.				
Chuck Cr.				
Tunga Cr.				
Sarkar Cr.				
Naukati Cr.				
Tokeen Cr.				
Karheen Cr.				
Essowah Cr.				
Devil Lake Creek				
Welcome L. Creek				
Manhattan Arm Cr.				
Kushneahin Creek				
Port Beauclerc L. Creek				
Tunehean Cr.				
Sutters Cr.				
Shipley Bay				
Ratz Hbr. Creek				

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Luck:				
Eagle Cr.				
Luck Cr.				
Street Cr.				
Hatchery Cr.				
Sweetwater:				
Hatchery Cr.				
Logjam Cr.				
Indian Cr.				
Salmon Bay Creek				
Red Lake Cr.				
Kah Sheets Creek				
Petersburg Creek				
Santa Anna Inlet Cr.				
Thoms Creek				
Kunk Creek				
Mill Creek:				
Tom Creek				
Stikine R.:				
Shakes Slough				
Red Slough				
Kikahe R.				
Andrews Cr				

Govt. Cr.

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
Gut Bay				
* Falls Creek				
Kutlaku Cr.				
Alecks Cr.				
Port Malmsbury Creek				
Taku River: 1)Sockeye Cr. 2)Fish Cr. 3)Yehring Cr. 4)Wright R.				
Speel River				
Whiting R.				
* Auke Creek				
Mendenhall River				
Basket Cr.				
Kook Cr.				
Pavlov R.				
Red Fish Bay				
Necker Bay				
Salmon Lake Creek				
* Redoubt Lake Outlet				

Stream System	Observed Escapements	Escapement Goals ?	Spawning Habitat	Comments
(Not Named)				
Sitkoh Cr.				
Takanis Cr.				
Surge Lake Creek				
Hoktaheen Creek				
Dundas R.				
Bartlett R.				
Berg River				
Herbert R.				
Berners R.				
* Chilkat R. 1)Chilkat R. 2)Klehini R. 3)Little Salmon R. 4)Kelsall R.				
Chilkoot R.				
East Alsek River				
Alsek R. 1)Alsek R. 2)Emile Cr. 3)Cabin Sl. 4)Gines Cr.				
Italio R.				
Situk River				
Arnklin R.				
Lost River/ Tawah Cr.				

Region Coho Species Approach

Discussion Leader: Gunstrom

Items:

1. Staff is working towards a regional management plan for coho, though we presently don't have the answers, staff or funds for a complete plan.

2. The revised SF/CF cooperative coho research program document for FY 89 is a positive step towards a regional management plan; it will provide the basis for developing a plan.

3. Stock Biology staff have developed a method to accurately estimate (>90%) stock of origin, hatchery versus wild, of coho salmon when scales are viewed on a microfiche reader. We are currently using this method to estimate contribution of hatchery cohos to our 1987 fisheries.

4. Handout - Southeast Alaska Cooperative Coho Salmon Research Program, FY 89.

ALASKA DEPARTMENT OF FISH AND GAME
SOUTHEAST ALASKA COOPERATIVE COHO SALMON RESEARCH PROGRAM, FY89

Component: Fin Fish Fishery Unit: Southeast Salmon

Project: Coho Salmon Research

BACKGROUND AND PROBLEM:

Coho salmon support important commercial, recreational, and subsistence fisheries in Southeast Alaska. The commercial catch of coho salmon has increased considerably over levels of the 1960's-1970's as a result of increased natural production, contributions by hatcheries, and improved management. Since 1980, commercial catches have averaged 2.05 million coho salmon and the recreational harvest has averaged 49,700 coho salmon. Increased catches, however, have not always been accompanied by increased escapements.

The majority of the commercial harvest occurs in mixed-stock fisheries, the management of which are not sensitive to the abundance of specific coho salmon stocks. In years of abundant returns, the escapement of some stocks has tended to be reduced in many areas of Southeast Alaska. Furthermore, management of wild coho salmon stocks can be complicated by abundant returns of hatchery-reared fish: when wild returns are weak relative to hatchery returns, overharvest of the former can occur unless hatchery stocks are coded wire tagged and contributions estiamted inseason.

Small streams, those that receive less than a 200 coho salmon escapement, comprise 96% of the known anadromous streams. In aggregate, they produce an estimated 60% of the coho salmon return (catch + escapement). Small stream stocks of coho salmon are thought to be less tolerant of under-escapement than numerically larger stocks and, if so, would be expected to first show the signs of reduced productivity. Indeed, low escapements of small stream stocks have occurred in some areas in 1983, 1986, 1987. Additionally, the production from some large watersheds such as Chilkoot Lake has fluctuated widely in the past 10 years suggesting that inconsistent recruitment has occurred. Fortunately, coho salmon populations can increase quickly under a favorable management environment. The goal of this program therefore, is to improve the management of coho salmon fisheries by developing estimates of optimum escapements for a number of like indicator stocks, establishing escapement goals and monitoring annual escapements to determine relative achievement of goals.

BENEFITS:

A comprehensive research program on coho salmon population dynamics and fisheries will provide data for increased precision in management of coho salmon fisheries in Southeast Alaska. Improved management precision, is expected to increase the abundance of coho salmon returns and produce long-term increases in sport, commercial, and subsistence harvests.

Collection of data on population dynamics of coho salmon is difficult and expensive and will require the cooperation and contribution of the resources of all fisheries divisions. The Alaska Department of Fish and Game's Divisions of Commercial Fisheries and Sport Fish, have pooled their resources under the "Southeast Alaska Cooperative Coho Research Program" to collect data, and develop and maintain a long-term, comprehensive data base on coho salmon production, harvest rate, escapement, and migratory behavior. Under this cooperative program, the Division of Sport Fish will concentrate its efforts on coho salmon stocks that contribute to the sport fisheries of major population centers and the Division of Commercial Fisheries will focus on coho salmon stocks that are primary contributors to commercial fisheries. Coded-wire tagged coho salmon from various research sites will be recovered via the Division of Commercial Fisheries's Port Sampling Program and analyzed and reported by the Division of Fisheries Rehabilitation, Enhancement, and Development's coded-wire tag lab.

STUDY DESIGN

Management of coho salmon fisheries will require information on three basic fisheries components for each stock aggregate: 1) a forecast of the size of the coho salmon return (i.e., catch + escapement); and 2) an estimate of an escapement goal for the return; and 3) harvest rates and area and time distribution of the return. Once these data are known, managers can monitor and adjust the catch as needed to achieve the desired escapement.

Since it is currently impractical to estimate return and escapement for the entire Southeast Alaska population of coho, management of coho salmon fisheries will be based on the estimated return, harvest rate, and escapement to indicator streams which represent surrounding stock aggregates. Two approaches to indicator streams are being considered: small streams and large "mega-producers". The current set of indicator streams (Table 1) have returns that are small relative to the fishery. Consequently, the assumption is made that these stocks are representative of a specified geographical area, i.e., the indicator stocks will have the timing and migration patterns, ocean survival rates, harvest rates, and biology typical of other streams in the vicinity. Therefore, management strategies based on forecasted return

and harvest rate of the indicator stock will likewise effect other streams within the indicator stock management area. The following is the current list of indicator streams where forecasts of the return and escapement goals will be possible; the list includes the management indicator area:

1. Chilkat Lake/Chilkoot Lake/Berners Bay: Unit 115, Cowee-Davies Creek and Lynn Canal

2. Yehring Creek: Lower Taku River, Tulsequah to Pt. Bishop.

3. Salmon Lake: Lower Sitka Sound

4. Eagle River: Krestof Sound to Fortuna Strait

5. Auke Creek: Juneau roadside

6. Jordan Creek: Juneau roadside, Gastineau Channel

7. Vallenar Creek: Ketchikan roadside, Annette Bay to Naha Bay

8. Hugh Smith Lake: southern Ketchikan area, lower Behm Canal, northern British Columbia

9. Ford Arm Lake: Outer coast of Chichagof Island

The second approach to indicator streams is to choose watersheds that are major contributors to the fishery. Unlike the above methods, which use the small to manage for the whole, this concept uses the large to manage for the whole thereby greatly reducing the chance of error. For example, Chilkat watershed, Chilkoot Lake, Berners River, and Taku River in aggregate produce an estimated 375,000 fish of which 300,000 are harvested. This represents the majority of the return to inside areas of northern Southeast Alaska. Consequently, by managing for escapement to those four streams, all other streams will be affected similarly.

Finally, indices of coho salmon escapement will be obtained from about 80 streams throughout Southeast Alaska (Table 2). This will provide a method of gauging the effects of management over a broader area.

OBJECTIVES:

1. Estimate (forecast) the coho salmon returns to indicator streams.

2. Estimate management escapement goals for coho salmon stocks returning to indicator streams.

3. Estimate harvest rates and cumulative harvest rates by time and area and contribution of indicator stocks to the various fisheries via return of coded-wire tagged coho salmon.

4. Obtain indices of coho salmon escapement in designated streams in Southeast Alaska and estimate an annual escapement index.

PROCEDURES

Objective 1: Forecast the adult return to indicator streams

There are three methods now being used in Southeast Alaska to forecast coho salmon returns: the smolt-survival method; the jack return method; and the "early catch" method; currently, only the smolt and jack methods are in use by this program. At each indicator site, the number of smolt leaving each year will be estimated using established mark-recapture methods; all fish captured will be coded wire tagged (CWT). Recovery of these CWT tags in the fishery and recovery of tagged and no-tagged fish at weirs at each indicator stream will permit "after the fact estimation of return"; too late to be of use for in-season management. However, long-term collection of data on these relationships can be used to formulate a model to estimate the expected return. Similarly, the return of jack coho salmon has been used successfully to predict the return of 1-ocean adults. Estimation of return follows the same procedures as described above.

Recovery of tagged fish in the fisheries will be made by the Division of Commercial Fisheries Port Sampling Program and by the Division of Sport Fish's Creel Project. Tags will be prepared, read, and the fisheries contribution and area of catch reported by the Division of Fisheries Rehabilitation, Enhancement, and Development coded-wire tag lab.

Objective 2: Estimate escapement goals for indicator streams

Weirs will be maintained annually on each indicator stream and estimates will be obtained of the adult escapement, jack escapement (where possible), and the number of tagged fish in the escapement. A random systematic sample of the escapement will be taken to estimate the age, sex, and size composition of the escapement. The number CWT tagged fish captured at the weir will be used to estimate the final harvest rates of

the stocks and the age composition of the escapement will be used to estimate the escapement goals using stock-recruitment models.

Objective 3: Estimate the harvest rates of indicator stocks

Recovery of CWT tagged fish in the fisheries will be made by the Division of Commercial Fisheries Port Sampling Program and by the Division of Sport Fish's Creel Sampling Project. Tags will be prepared, read, and the fisheries contribution and area of catch reported by the Division of Fisheries Rehabilitation, Enhancement, and Development coded wire tag lab. These data will be used to estimate the catch by time-area strata and to estimate the timing and migratory patterns of the indicator stocks. If the error in these estimates is deemed acceptable, in season management can be conducted using the cumulative harvest rate of the indicator stocks, and adjustments in catch can be made to achieve desired escapement goals.

Objective 4: Region-wide indices of spawner escapement

The relative abundance on coho spawners will be measured region wide by obtaining indices of coho salmon spawner escapement in about 80 streams throughout Southeast Alaska (Table 2). Escapement surveys will be conducted by foot, aerial, float, or by dive methods and repeated several times, if possible, to obtain a peak index of escapement.

ANALYSIS AND REPORTING

Data will be analyzed by established methods; all estimates will be reviewed and approved by the biometric staff prior to publication. Data will be published anually as a Divison of Commercial Fisheries Technical Data Report or Fishery Bulletin and as a Division of Sport Fish Fishery Data Series.

DURATION:

This program should continue for a minimum of two coho salmon life cycles (about 8 years) to provide enough data to estimate escapement goals and to develop return models for in-season management. However, coho salmon fisheries, populations, and related environmental factors are dynamic and, as recommended in the "1987 Southeast Alaska Regional Coho Salmon Program Review", the Department should adopt a long-term strategy and view the program as part of its on-going management program.

BUDGET:

The budget of the Cooperative Coho Salmon Research Program is derived from Dingell-Johnson, Anadromous Fisheries, Fish and Game, General Fund,

and U.S./Canada Program funding sources. The total budget for the program in FY89 is estimated at $666,600. The components of the program and their costs are listed in Table 1.

RECOMMENDATIONS FOR FY89 AND FY90:

Following a meeting on Feb. 26, 1988, the consensus of the project leaders of the Cooperative Coho Salmon Research Program was to redirect the resources of the program from sites where marginal data are being collected and concentrate on sites that are expected to produce the full range of data. Furthermore, research staff feels that the program should develop programs on the "mega-streams" which have greater potential for producing accurate management data. The following changes are recommended:

1. Estimate the escapement of early and late run adult coho salmon to Taku River above Canyon Island in conjunction with existing U.S./Canada studies beginning in FY89.

2. Estimate the escapement of adult coho salmon in Chilkat River, and Berners River using mark-recapture estimation methods beginning in FY90.

3. Estimate the production coho salmon smolt emigrating from Taku River, Chilkat River beginning in FY90.

4. Estimate the production of coho salmon smolt emigrating from Ford Arm Lake in FY89 (funding dependent).

5. Delete Salmon Bay Lake and Vallenar Creek from the program in FY89.

Table 1. Cooperative Coho Salmon Research Program FY89 estimated expenditures by research site and agency. Allocations and sites are preliminary.

Line	100	200	300	400	500	Total
Chilkoot Lake	16.4	1.5	1.0	3.0	0.0	21.9
Auke Creek	0.0	0.0	12.9	0.0	0.0	12.9
Chilkat Lake	16.9	1.5	1.0	3.0	0.0	22.4
Chilkoot Lake	16.4	1.5	1.0	3.0	0.0	21.9
Eagle River	10.9	0.0	1.0	3.1	0.0	14.9
Jordan/Chilkat	10.8	0.0	2.0	3.8	0.0	16.6
Salmon Lake	34.5	2.0	4.2	6.4	0.0	47.1
Sinitsin/St. John Creeks	6.1	0.0	1.0	1.8	0.0	8.8
Vallenar Creek	29.9	1.7	11.5	5.8	0.0	48.9
Yehring Creek	50.1	0.0	12.6	5.4	12.0	80.1
12mm PCN 4032	65.6	-	-	-	-	65.6
SF Subtotal	241.2	6.7	47.2	32.2	12.0	339.3
Berners River	18.6	0.0	10.2	3.3	1.5	33.6
Hugh Smith Lake	19.1	1.0	10.5	3.4	1.5	35.5
Ford Arm Lake	23.4	1.0	12.8	4.2	1.5	42.9
Little Tatsamenie Lake	7.8	0.0	3.1	2.5	0.0	13.4
Taku R. Escapement	0.0	0.0	5.8	0.5	0.0	6.3
SSEAK Escapement	0.0	0.0	16.5	1.5	0.0	18.0
Staff and Office	66.2	2.6	2.0	6.8	0.0	77.6
CF Subtotal	135.1	4.6	60.9	22.2	4.5	227.3
GRAND TOTAL	376.3	11.3	108.1	54.4	16.5	666.6

Table 2. Streams where indices of coho salmon escapement will be obtained by area staff, Septmeber - November 1988 and responsible agency.

HAINES AREA:		
Chilkat River (20-22 mi)	115-32-025	(SF)
Chilkat Lake (weir)	115-32-032	(SF)
Clear Creek	115-32-027	(SF)
Takhin River	115-32-030	(CF)
Spring Creek	115-32-040	(SF)
31 mile Creek	115-32-057	(SF)
Kelsall River	115-32-064	(SF)
Tahini River	115-32-068	(SF)
Chilkoot Lake (weir)	115-33-020	(SF)
JUNEAU AREA:		
Switzer Creek	111-40-007	(SF)
Peterson Creek	111-50-010	(SF)
Auke Creek (weir)	111-50-042	(ABL)
Montana Creek	111-50-052	(SF)
Steep Creek	111-50-056	(SF)
Jordan Creek	111-50-062	(SF)
Outer Point Creek	111-50-075	(SF)
Hasselborg River	112-67-035	(CF)
Chiak Bay Creek	112-80-028	(CF)
Berner River	115-20-010	(CF)
Taku River Tributaries:		
Sockeye Creek	111-32-038	(SF&CF)
Fish Creek	111-32-056	(SF&CF)
Wilms Creek	111-32-203	(SF&CF)
Yehring Creek (weir)	111-32-066	(SF&CF)
Johnson Creek	111-32-068	(SF&CF)
Nahlin River	111-32-270	(CF)
Dudidontu River	111-32-280	(CF)
Hackett River	111-32-260	(CAN)
KETCHIKAN AREA:		
Tombstone River	101-15-019	(CF)
Fish Creek (opt)	101-15-085	(SF)
Vallenar Creek	101-29-006	(SF)
Humpback Creek (opt)	101-30-083	(SF)
Carrol River	101-45-078	(SF)
Ward Creek	101-47-015	(SF)
Indian River	101-71-004	(SF)

Eulachon River	101-75-015	(SF)
Herman Creek (opt.)	101-75-005	(SF)
Traitors Creek	101-90-029	(SF)
Hugh Smith Lake (weir)	101-30-083	(CF)
Prince of Wales Island:		
Twelvemile Creek	102-60-072	(SF)
Harris River (opt)	102-60-082	(SF)
Maybeso Creek	102-60-084	(SF)
St. Nicholas Creek	103-60-059	(SF)
Cable Creek	103-60-077	(SF)
S. Staney Creek (opt)	103-90-042	(SF)
108 Creek	106-30-080	(SF)

PETERSBURG AREA:

Navy Creek	106-22-016	(CF)
Flat Creek	106-22-006	(CF)
Falls Creek	106-44-006	(SF)
Oerns Creek	107-40-025	(CF)
Harding River (Opt.)	107-40-049	(CF)
N. Bradfield River (Opt.)	107-40-052	(CF)
Eagle River (Opt.)	107-40-055	(CF)
Sumner Creek	108-40-040	(SF)
Ohmer Creek	108-40-050	(SF)
Bear Creek	108-50-003	(SF)
Stikine River Tribs:		
North Arm Creek	108-40-010	(CF)
Shakes Slough	108-40-013	(CF)
Clear Creek	108-40-13A	(CF)
Kikahe River	108-40-016	(CF)
Shuktusa Branch	108-40-018	(CF)
Andrews Creek	108-40-020	(CF)

SITKA AREA:

Starragavan Creek	113-41-015	(SF)
Indian River	113-41-019	(SF)
Salmon Lake (weir)	113-41-032	(SF)
Nakwasina River	113-43-002	(SF)
Sinitsin Creek	113-62-008	(SF)
St. Johns Creek	113-66-006	(SF)
Black River	113-81-011	(SF)
Ford Arm Lake (weir)	113-73-003	(CF)

YAKUTAT AREA:

Airport ditches	NA	(SF)
Akwe River	182-40-010	(SF&CF)
Italio River	182-50-010	(SF&CF)
Old Situk River	182-70-015	(SF&CF)
Situk River	182-80-010	(SF&CF)
Tawah/Lost River	182-80-030	(SF&CF)
Yahtse River	185-10-010	(CF)
Tsiu River	192-42-020	(CF)
Tsivat River	192-42-040	(CF)
Kaliakh River	192-41-010	(CF)

APPENDIX A

Synopsis: Division of Sport Fish FY89 Operational Plan

A STUDY OF COHO SALMON IN SOUTHEAST ALASKA: SYNOPSIS

TITLE: A Study of Coho Salmon in Southeast Alaska

NEED:

Coho salmon support important commercial, recreational, and subsistence fisheries in Southeast Alaska. The annual commercial catch during 1980-1986 averaged 2.05 million fish. During the same period, the annual recreational catch averaged 48.5 thousand coho salmon. The commercial catch of wild coho salmon has increased considerably over levels of the 1960's-1970's suggesting that more favorable environmental conditions now exist for the production of coho salmon. While catches have increased, escapement to terminal fisheries and to the spawning grounds have remained the same or have decreased. In 1986, the commercial fishery harvested a record number of coho salmon; at the same time many streams received record low escapements. The majority of the commercial harvest occurs in a mixed-stock fishery, making the management of specific coho salmon stocks very difficult. In a mixed stock fishery, stocks of varying relative production are harvested at the same rate - conditions that can result in under-escapement of less productive stocks. This problem is most acute when large hatchery returns intermingle with wild stocks. These conditions can be prevented and total production from the coho salmon resource can be increased by improving the precision of mixed-stock management. Management of coho salmon can be accomplished with the following basic tools: 1) estimates of management escapement goals for indicator streams; 2) estimates of return to indicator streams; and 3) inseason monitoring of harvest rate. Other information needed include migratory timing, migration routes, area of harvest, and affected fisheries.

BENEFITS:

Increased precision of coho salmon fisheries management is expected to produce long-term increases in sport, commerical, and subsistence catches. To accomplish these goals, the Divisions of Commercial Fisheries and Sport Fish of the Alaska Department of Fish and Game, have pooled their resources and formed the "Cooperative CF/SF Coho Salmon Research Program". The program is designed to collect data to develop a long-term data base on: 1) the population dynamics, smolt production, migratory behavior, and contribution to fisheries of stocks returning to selected indicator streams; 2) indices of coho salmon escapements will be obtained Southeast-wide to gauge the effectiveness of management strategies. The number and age composition of fish in the escapement will be used to estimate management escapement goals for the indicator streams and estimates of smolt production will be used to forecast the

size of future returns. By monitoring the cummulative catch of tagged adults returning to indicator streams, managers will be able to adjust fishery effort to meet escapement goals.

OBJECTIVES:

1. Estimate the escapement of:

   a. age .0 and age .1 adult coho salmon to Chilkat Lake between 1 September and 15 November 1988.

   b. age .1 adult coho salmon to Chilkoot Lake between 1 September and 15 November 1988.

   c. age .1 adult coho salmon to Salmon Lake between 15 August and 15 October 1988.

   d. age .1 adult coho salmon to Vallenar Creek between 1 September and 15 November 1988.

   e. age 1 adult coho salmon to Yehring Creek between 1 August and 1 November 1988.

2. Estimate the migration routes, run timing, numbers caught, exploitation rates, and areas of harvest of coho salmon returning to Salmon Lake and Yehring Creek in 1988 and their contribution to the various southeast Alaska fisheries.

3. Estimate the:

   a. freshwater age composition, sex composition, and mean length at freshwater age of age .0 and age .1 adult coho salmon returning to Chilkat Lake, Salmon Lake, Vallenar Creek, and Yehring Creek in 1988.

   b. freshwater age composition, sex composition, and mean length at freshwater age of age .1 adult coho salmon returning to Chilkoot Lake in 1988.

4. Estimate the number of coho salmon smolts emigrating from:

   a. Chilkat Lake between 1 May and 30 June 1989.

   b. Jordan Creek between 15 April and 1 June 1989.

   c. Eagle River between 15 April and 1 June 1989.

   d. Salmon Lake between 15 April and 1 June 1989.

   e. Vallenar Creek between 15 April and 1 June 1989.

   f. Yehring Creek between 1 May and 30 June 1989.

5. Estimate the age composition and mean length at age of coho salmon smolts emigrating from Chilkat Lake, Jordan Creek, Eagle River, Salmon Lake, Vallenar Creek and Yehring Creek in 1989.

6. Estimate the number of coho salmon juveniles greater than or equal to 65 mm fork length in St. John and Sinitsin Creeks during July 1988.

7. Estimate the age compostion and mean length at age of coho salmon juveniles in St. John and Sinitisin Creeks during July 1988.

8. Estimate ordinal indices of coho salmon escapement in a designated set of streams located near Haines, Juneau, Ketchikan, Sitka, Petersburg, and Yakutat in October and November 1988.

PROCEDURES:

Adult coho salmon will be counted at Chilkat Lake, Chilkoot Lake, Salmon Lake, and Yehring Creek in 1988 using metal picket weirs with upstream migrant traps. Adult coho salmon at Vallenar Creek will be counted via foot survey between 1 September and 1 November 1988. All weir-captured adult coho salmon will be marked with an opercular punch mark. These marks are deployed in order that a mark-recapture population estimate can be attempted if the weir becomes "inoperable" during the period of the project (e.g., the weir is overtopped during a freshet). A sample of the weir caught adult coho salmon will be measured for length and scale samples collected for age determination. (Objectives 1 and 3).

In-season estimates of the coho smolt populations at Chilkat Lake, Eagle River, Jordan Creek, Salmon Lake, Vallenar Creek, and Yehring Creek will be estimated using one of two mark-recapture methods. At Chilkat Lake, Eagle River, Yehring Creek, and Salmon Lake a minimum of 2,000 coho

salmon smolts will be captured using baited minnow traps or trough traps, given a coded-wire tag and an adipose fin clip, and released. Recovery of the marked and non-marked smolts in downstream fyke traps or baited minnow traps will be used to estimate the number of emigrants; all unmarked smolts captured at this time will be given CWT tags and released. At Jordan Creek and Vallenar Creek, a minimum of 500 juveniles > 70 mm will be captured in upststream areas prior to the onset of the migration and given a temporary fin mark and released. Subsequent recovery of marked and unmarked fish in downstsream fyke traps will be used to estimate the smolt population. All smolts will receive a CWT tag and be released. A random systematic sample of smolts will be collected at each site to estimate the age composition and length at age (Objective 4 and 5).

The number of coho salmon juveniles > 65 mm will be estimated during July in Sinitsin and St. John Creeks using a mark-recapture method. Juveniles will be captured with modified baited minnow traps deployed throughout the stream, marked and released. A recapture sample will be conducted 2 weeks later and the number of marked and non-marked juveniles captured will be used to estimate the population of fish > 65 mm (Objective 6 and 7).

Recovery of tagged adults in the fishery as will provide information to estimate the migratory timing, migration route, areas of harvest, and exploitation rate of coho salmon produced from each study site. Recovery of tagged fish from the troll, purse seine, and gillnet fisheries will be accomplished by the Division of Commercial Fisheries port sampling program and from the sport fishery by the Division of Sport Fish creel survey programs. Finally, recovery of tagged adults at the adult weir and during the post-spawning surveys complete the efforts. The Division of Fisheries Rehabilitation Enhancement and Development (F.R.E.D.) tag lab will report the estimated harvest, by time, area, and fishery of each CWT tagged population. (Objective 2)

Indices of coho salmon escapement will be obtained in 93 coho salmon-producing watersheds distributed throughout southeast Alaska. Area biologists will survey each index stream by foot, float, or by aerial methods and count adult coho salmon in each stream. Surveys will be repeated three or more times if possible approximately 1 week apart to obtain maximal ordinal indices of abundance. Escapement surveys will take place from September to late November 1988 depending on conditions (Objective 8).

Data will be summarized and reported annually (1 March 1989) as a Fisheries Data Series report.

LOCATION:

Study sites are located as follows:

Chilkat Lake	Tsirku River, 15 miles NW of Haines
Chilkoot Lake	near Haines
Eagle River	Kruzof Is., 10 miles NW of Sitka
Jordan Creek	Juneau road system
Salmon Lake	Baronof Is., 10 miles SE of Sitka
Sinitsin Creek	Salisbury Sound, 25 miles NW of Sitka
St. John Creek	Salisbury Sound, 25 miles NW of Sitka
Vallenar Creek	Gravina Is., 6 miles NW of Ketchikan
Yehring Creek	Taku River, 30 NW of Juneau

BUDGET SUMMARY (FY89):

	100	200	300	400	500	Total
Code: 1002-112-0880						
Elliott	65.6					
Chilkat L.	16.9	1.5	1.0	3.0	0.0	22.4
Chilkoot L	16.4	1.5	1.0	3.0	0.0	21.9
Yehring Cr.	50.1	0.0	12.6	5.4	12.0	80.1
Salmon L.	34.5	2.0	4.2	6.4	0.0	47.1
Subtotal	183.5	5.0	18.8	17.8	12.0	237.1
Code:1002-112-0652						
Vallenar Creek	29.9	1.7	11.5	5.8	0.0	48.9
Subtotal	29.9	1.7	11.5	5.8	0.0	48.9
Code:1002-112-____						
Sin./St.John Crs.	6.1	0.0	1.0	1.75	0.0	8.85
Eagle River	10.9	0.0	1.0	3.05	0.0	14.95
Jordan/Chilkat	10.8	0.0	2.0	3.8	0.0	16.60
Subtotal	27.8	0.0	4.0	8.6	0.0	40.4
Grand Total	241.2	6.7	34.3	32.2	12.0	326.4

2. BUDGET MANAGERS: Steve Elliott and Art Schmidt
3. PROJECT PERSONNEL:

NAME	PCN	CLASS	FUNDED	LOCATION	COST
Code:1002-112-0880					
PERMANENT FULL-TIME:					
Steve Elliott	4032	FBIII	12.0	Juneau	65.6
Art Schmidt	4050	FBIII	0.0	Sitka	0.0
Steve Hoffman		FBIII	0.0	Ketchikan	0.0
SEASONAL PART-TIME:					
David Dryer	1662	FT III	3.0	Chilkat L.	8.8
Nick Cassara	1727	FT II	3.0	Chilkat L.	8.1
Patty Faverty	1822	FT III	3.0	Chilkoot L.	10.1
Jan Highfield	1703	FT II	3.0	Chilkoot L.	7.1
Karl Kuntz	4189	FB I	10.5	Yehring Cr.	37.1
Pat Kellen	4089	FT II	5.0	Yehring Cr.	12.2
James Woolington	4182	FB I	6.5	Salmon L.	22.7
John DerHovanisian	4112	FT II	4.5	Salmon L.	11.8
Subtotal					183.5
Code:1002-112-0652					
Vacant	4203	FBI	4.0	Vallenar Cr.	14.1
Vacant	4231	FTII	3.0	Ketchikan	8.2
Vacant	N201	FTII	4.0	Vallenr Cr.	9.8
Subtotal					29.9
Code:1002-112-____					
John Derhovanisian	4112	FTII	1.0	Sm.Streams	2.6
James Woolington	4128	FBI	1.0	Sm.Streams	3.5
Vacant		FBI	2.0	Eagle R.	7.1
Vacant		FTII	1.5	Eagle R.	3.8
Vacant	4111	FTIII	2.0	Jordan/Chil	5.7
Vacant	4179	FTII	2.0	Jordan/Chil	5.1
Subtotal					27.8
TOTAL					241.2

APPENDIX B

Division of Commercial Fisheries FY89 Operational Plan

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES

PROJECT OPERATIONAL PLAN

Title: Coho Salmon Investigations

Project Leader: Leon Shaul

PCN: 11-1229

Date Submitted: April 1988

Region: Southeast Alaska

Fishery Unit: Southeast Salmon

Yellow Book Project No.: _____

Fiscal Year: 89

Total Project Cost: 287.3 Thousand

APPROVAL

Level	Signature	Date
Biometric:		
Regional:		4/14/88
Divisional:		

I. TITLE: Coho Salmon Investigations

II. OBJECTIVES:

A. List the specific objectives beginning with the highest priority:

1. Estimate escapement, fisheries contribution, harvest rate, migratory timing, juvenile or smolt to adult survival rate, and age composition for three coho salmon stocks in Southeast Alaska and one stock in the upper Taku River. Estimate smolt outmigration for one stock in Southeast Alaska.

2. In addition to the four stocks in (1), estimate the harvest distribution by area, gear type, and time period for an additional Taku River stock and the Kadashan River stock.

3. Develop escapement index sites on the Taku River and streams in southern Southeast Alaska where comparable escapement counts can be obtained annually by conducting helicopter and foot surveys.

B. This project will contribute to the following Fisheries Management Operational Plans:

Species	Gear	Location
Coho	Drift Gillnet	Districts 106 & 108
Coho	Drift Gillnet	District 111
Coho	Drift Gillnet	District 115
Coho	Troll	Regionwide
Coho	Set Gillnet	Yakutat, Yakataga

III. NEED OR PROBLEM ADDRESSED:

A. Describe the public and/or resource need addressed by the project and the project's benefits.

The Southeast Alaska coho salmon resource supports fisheries that are of major economic and social importance to the region. In 1986, coho salmon stocks in Southeast Alaska and adjacent coastal and inland areas supported a commercial harvest of 3.5 million fish worth approximately $24 million (ex-vessel value) to Southeast Alaska fisheries. In addition to the commercial harvest, these stocks support important recreational and subsistence fisheries. Increasingly intense competition among gear groups for the right to harvest coho salmon is being demonstrated both on the fishing grounds and at Board of Fisheries meetings. Use of more efficient gear and increased targeting on coho salmon because of their high value (and restrictions on other species) has placed increased

pressure on the stocks. There is an urgent need for more technical information on the migratory patterns, harvest rates, stock contribution, and status of coho salmon stocks to guide the Department, Board of Fisheries, and Pacific Salmon Commission in making sound management decisions.

In spite of this need, annual escapement assessment is sparse to the point where it is impossible to provide even a qualitative synopsis for some major management areas. Until recently, very little has been known about the migratory characteristics and harvest rates of individual stocks or groups of stocks. There is still very little known of productivity and sustainable harvest levels and no reliable procedure for forecasting abundance has been developed.

In the short term, coded-wire tagging studies provide useful information for evaluating management needs and options by determining the migratory characteristics of discrete stocks and groups of stocks, and harvest rates by sequential fisheries. Associated escapement enumeration projects also provide comparable escapement estimates that can be used for annual management assessment. In the long term, estimates of escapement, total return and age composition will be useful for refining escapement objectives for index systems. Harvest rate estimates can be compared among years to determine trends in the efficiency of the fisheries. Coded-wire tagging studies also provide information that will be of use in implementing the U.S./Canada Pacific Salmon Treaty including estimates of harvest percentages by nation, fishery, and time period for selected stocks. Improved annual escapement assessment and harvest distribution information is needed for coho salmon stocks in the transboundary rivers in order to set management objectives for U.S. and Canadian fisheries that achieve both allocation and conservation goals.

B. The success of the project will be judged by the degree of potential bias and variability of estimates. The objectives of the project will be achieved if unbiased estimates are obtained with sufficiently narrow confidence limits that escapement, fishery contribution, return by brood year harvest rate, and survival rate estimates can be validly compared among years. In other words, confidence limits should be well within the actual range of fluctuation of the estimated parameters. It is recognized that all statistical objectives will not be achieved for all study systems. The bottom line objective that has been used in project planning is achievement of 95% confidence limits for a 0.60 harvest rate estimate that are within the limits of 0.50 and 0.70, respectively. This is viewed as an absolute minimum for any individual experiment. The extent to which past and future studies have met or are likely to meet, statistical objectives needs more thorough investigation.

IV. PROJECT DESCRIPTION:

Coho salmon rearing juveniles and smolts are coded-wire tagged with discrete tag codes at eight locations in Southeast Alaska and northern British Columbia. Tagged adults return in 1 to 2 years and are recovered from Alaskan fisheries by the Micro-wire Tag Recovery Project which has a minimum tag recovery sampling objective of 20% of the catch by area, gear type, and time period. Returning tagged fish that enter the escapement are enumerated or estimated at five or six of the instream recovery locations, while an intensive ground survey (10 days) is conducted at another location. Fish are marked at the recovery weirs and are sampled on the spawning grounds if part of the escapement is suspected of having passed the weir uncounted during high water conditions. Estimates derived from studies in which returning tagged fish are sampled only in the fisheries include distribution of the catch by area, gear type, and time period for those stocks. For studies in which the total escapement is estimated or enumerated and sampled for tags, additional parameters are estimated including contribution of the tagged stock by area, gear type, and time period, total escapement, harvest rate (total and for sequential fisheries), harvest rate (total and for sequential fisheries), and survival rate. In some cases, a mark/recapture estimate of the total smolt outmigration is also obtained.

A. Location: Study systems where fish will be tagged and sampled in the escapement include the Berners River, Ford Arm Lake, Hugh Smith Lake, and possibly little Tatsamenie Lake (depending on funding and cooperation with the Canadian Department of Fisheries and Oceans). Fish will be coded-wire tagged but not recovered in the escapement at the kadashan River (depending on cooperation with the U.S. Forest Service's, Forestry Sciences Laboratory).

B. Field Program Duration: 15 April through 15 February.

C. Sampling Duration If Different Than Above: 20 April through 15 February.

D. Frequency Of Sampling While In The Field: 7.5 hours per day, 6 days per week.

E. Longevity Of The Project: [ ] 1 year, [ ] 2 years, [ ] 3 years, [X] continuing

F. The project is new. [ ] Yes, [X] No

G. The project began in 1972.

H. Give the title and status of the most recent project report.

Coded-wire Tagging of Wild Coho Salmon (Oncorhynchus kisutch) Stocks in Southeastern Alaska, 1984-1985. ADF&G Technical Report No. 218. Published, November 1987.

V. DATA COLLECTION:

A. List types of data collected and means of recording each.

1. Number of fish tagged by location and tag code.
2. Snout-fork length of rearing juveniles and smolts.
3. Mideye-fork length of adults and jacks.
4. Sex of adults.
5. Fishery marks including hooks, hook injuries and net marks on adults.
6. Scales.
7. Adult tag numbers.
8. Number of fish of all species passing weirs.
9. Number of fish captured in minnow traps.
10. Number of tagged fish in the escapement.
11. Water level.
12. Water temperature.
13. Data on other species as requested by other projects and fishery managers (e.g., sockeye AWL data, pink, chum, and sockeye escapement surveys).

B. Sample collection methods:

Outmigrating smolts are captured for tagging at Hugh Smith Lake with a smolt weir that is operated at the outlet. Wire-mesh minnow traps are used to capture rearing juveniles in other systems. In addition to minnow traps, a smolt trap is used by the U.S. Forest Service's, Forestry Sciences Laboratory to capture smolts for tagging in the Kadashan River. This is a cooperative project with ADF&G. Fifty minnow traps baited with salmon roe are checked and set three to four times daily at 2 hour intervals to capture rearing juveniles at the other sites. Traps are moved frequently to maintain high catch rates and systematically "fish out" the habitat. Juveniles are held in pens before tagging until a total of 1,000 to 4,000 is captured, but not for a period longer than 4 days. Outmigrating smolts captured at smolt weirs are tagged and released daily. Fish over 62mm in length are tagged with a full-length coded-wire tag and the adipose fin is removed. Snout-fork length and scales are taken approximately 600 smolts captured throughout the run at Hugh Smith lake. Twenty samples are taken on days when less than 200 smolts are captured while 10% of the catch is sampled when more than 200 fish are caught.

Weirs are constructed on the outlet streams of three systems. All coho salmon passing the weirs are counted and examined for missing adipose fins. Those with adipose clips are examined with a magnetic field detector to determine whether or not there is a tag. Marked fish that register a strong, consistent signal are released while those that do not are sacrificed and the head is sent to the coded-wire tag lab in Juneau for further examination. All adult

coho salmon that pass through three of the weirs are floy tagged and a secondary mark (clip) is applied to the dorsal fin. These tagged fish help insure an unbiased escapement estimate if the weir does not remain fish-tight. All fish passing the weirs are examined for fishery marks. Scale samples (four scales per fish) and mideye-fork length measurements are taken from 600 fish. Separate escapement records are kept for jacks (age .0) and adults (age .1). There is a slight overlap in the size distributions of the two ocean age groups, so there is a small degree of subjectivity in assigning fish to these categories. Age-length data is taken randomly over both ocean age groups which allows some correction to be made later. Harvest rate estimates are based only on adult (age .1) returns. Tagged jacks are very seldom recovered from the fisheries and some pass between the weir pickets uncounted. Tag recovery surveys are conducted in inlet streams of the lake if there is any suspicion that adults escaped past the weir uncounted. Three to six trips are made to each system during the spawning period (late October through mid-February). fish are sampled by almost any feasible means including beach seine, dipnet, sport gear, and on rare occasions, gillnet. The presence or absence of a floy tag and secondary mark is recorded. The secondary mark is important because tag loss rates for floy tags are commonly as high as 20-30%.

The Berners River is surveyed and sampled during the last 10 days of October. There is a window of time coinciding with this period when virtually the entire escapement has entered the river but very little actual spawning and, subsequently, very little mortality has occurred. The water is clear and the dark fish are highly visible against the light colored bottom as they hold in pools. Visibility is normally excellent in all holding areas. The entire upper drainage is surveyed on foot while the lower river is surveyed by helicopter before departing. A total count is made and as many fish as possible are seined or dipnetted and sampled for coded-wire tags. The tag sampling objective is 25% or more of the total escapement count. Scales and length are taken from 600 fish. However, the age-length sampling objective is dropped to as low as 400 fish if necessary to allocate more time toward achieving the tag recovery sampling objective.

Helicopter surveys are conducted on the Nahlin and Dudidontu Rivers in the upper Taku River system and on U.S. tributaries of the Stikine River as well as selected coastal streams in southern Southeast. Surveys of lower Taku River tributaries are conducted by the ADF&G Sport Fish Division. Survey locations are chosen for good visibility in holding and spawning areas adult coho salmon. Surveys are timed as near as possible to the period of peak abundance of fish in the survey area. One to three surveys are conducted in each index area during the run depending on funding, weather, and the results of early surveys. The helicopter is flown the full length of the survey area at 6-20m above the ground (except to clear taller trees) and at a ground speed of 8-30km per

hour depending on visibility and the presence of fish. The door is removed on the observer's side and the helicopter is maneuvered so that the observer is looking directly into the stream at all times. The observer wears polaroid glasses and a billed cap to reduce interference from reflection and propwash. Foot surveys are conducted on selected streams in southern Southeast. All holding and spawning areas of each are walked. All visible adult coho salmon are counted. Time, weather, and visibility conditions are recorded as well as any other pertinent observations (distribution and condition of the fish, observations of other species, etc.).

All data from weirs, coded-wire tagging operations and escapement surveys are initially recorded in field notebooks. Weir counts are summarized daily, on standard forms. AWL data is transferred daily to mark-sense forms. Data from CWT samples (heads sent to the tag lab) is recorded in field notebooks and summarized on standard forms provided by the tag lab. Escapement survey data and total weir counts by species are transferred form field notebooks to standard escapement survey forms.

VI. DATA ANALYSIS:

A. State sample sizes and how they were determined.

The minimum statistical objective for individual studies has been confidence limits from 0.50 to 0.70 for a total harvest rate point estimate of 0.60. Given average or slightly lower survival rates for tagged fish, a total escapement count, and a 20% average fishery sampling rate, this objective can be achieved by tagging 5,000 juvenile coho salmon (or 2,500 smolts). These are absolute minimum tagging objectives for any system. The actual number tagged is the number that can be feasibly captured in most cases. For example, minnow trap catches decline sharply as accessible habitat is trapped out. A small system can be trapped to the point of greatly diminished returns in 2-3 weeks by a four person crew. All smolts that are captured at smolt weirs or in downstream migrant traps are tagged. Based on past experience, minimum tagging objectives by system for rearing juveniles are: Ford Arm Lake - 6,500; Berners River - 10,000; and little Tatsamenie Lake - 12,000. Minimum tagging objectives for smolts are: Hugh Smith Lake - 10,000; and kadashan River - 3,000.

Every attempt is made to examine all of the escapement, or as much as possible, for tags. The minimum objective of 25% for the Berners River escapement is based on the percentage that a crew can reasonably expect to capture during a 10 day trip. Many of the fish hold in pools with snags or overhanging brush and are difficult or impossible to capture with a seine.

All adult coho salmon that are passed through the Ford Arm and Hugh Smith Weirs are tagged. Rare exceptions occur when a very large

number of fish passes the weir in a single day and all cannot feasibly be tagged. Mark-recapture sampling is conducted in inlet streams if there is any reason to believe that fish have escaped uncounted. Recapture sampling objectives are established to provide 95% confidence limits that are ± 10% of the point estimate. As much productive effort as possible is put into sampling until this objective is achieved. In some cases, weather and fish behavior make this confidence level impossible to achieve.

The age-length sampling objective for adults and smolts is 600 fish. A minimum of 454 samples is the standard established by the Stock Biology Group for a 3 age class population. If one age class is estimated to comprise 50% of an infinite population, this sampling level results in 90% confidence limits of 45% and 55%, respectively. The higher sampling objective (600) was established to allow for a high scale regeneration rate observed in coho salmon and to tighten confidence limits somewhat beyond the established standard. The sampling objective is sometimes relaxed to as low 400 fish for the Berners River to allocate more sampling effort to tag recovery. The Berners River population is comprised almost entirely (98%+) of age 1.1 and 2.1 fish and, therefore, can realistically be treated as a 2 age class population

Coho salmon are often elusive animals during their freshwater phase. Therefore, instead of setting fixed target tagging and sampling rates, all efforts are maximized as much as is feasible under current funding levels in order to hedge our bets, statistically. All of these tagging and sampling rates are interrelated statistically so that increasing samples above a minimum target level for one parameter can compensate for reduced sampling effort in another area because of conditions beyond our control. There needs to be a much more thorough statistical evaluation of these studies for both project planning and data presentation.

B. List the types of data tables which you will use to summarize your data.

Estimated smolt outmigration by brood year; estimated adult return by brood year; estimated harvest rates (total and by fishery); estimated harvest by area and gear type, and escapement; number of fish coded-wire tagged by location, year, tag code and size; estimated survival rates of tagged fish by stock and year.

C. State the types of statistical techniques and tests you expect to apply, and list the questions each test will help you evaluate.

Linear and multiple regression analysis will be used to evaluate: (1) relationships between age .0 and age .1 returns; (2) correlation between escapement and environmental factors and adult return; and (3) correlation among smolt outmigration timing, smolt age and size, environmental factors, marine survival rates and ocean age composition at the time of return. These tests will be

conducted after several years of data are available for individual stocks. They will help in evaluating the predictive relationship between jack and adult returns; optimum level of escapement; effect of environmental variables on marine survival, total return, and ocean age composition; and the effect of smolt migratory timing and size on ocean age composition.

D. Specify the estimates (statistics) which are computed.

Point estimates are computed for fishery contribution by area and gear type, percent of total harvest by area and gear type, escapement, total harvest rate, harvest rates by sequential fisheries, mean of migratory time, density by area and gear type for major fisheries, survival rate from tagging to recovery, total smolt outmigration, age composition, and total return by brood year. Ninety-five percent confidence limits are computed for escapement and smolt outmigration. Standard error is computed for age composition. Confidence limits for other estimates generated from coded-wire tag data will be computed pending biometrics and computer programming support.

E. Describe where, how, when, and with what hardware and software these analyses will be conducted.

Analyses will be conducted on an ongoing basis at the Southeast regional office in Douglas using an IBM-XT micro-computer and a VAX mini-computer with Lotus, WordPerfect, and Strat-Soft software. The fishery coded-wire tag data base on the tag labs Ultimate 6600 computer will be accessed using Pick software. Other software and custom programs may be used pending biometrics and programming support.

VII. REPORTING:

A. Types of documents to be written by author and completion date.

Report	Author	Completion Date
Federal Aid Technical	Shaul	Annual
U./s. Canada Contract	Shaul	Annual
Information Leaflet	Shaul	At appropriate time for project summary.

VIII. PROJECT BUDGET:

A. By line item:

Line	GF	Federal Aid	US/Canada	Total
100	51.2	51.2	109.4	211.8
200	1.5	1.5	0.6	3.6
300	9.8	9.8	27.4	47.0
400	5.9	5.9	8.1	19.9
500	2.5	2.5	-	5.0
Total	70.9	70.9	145.5	287.3

B. The cost per sample for each data type.

Data Type	Cost/Observation
1. Tagging cost per juvenile or smolt (average)	$ 1.41
2. Adult coho salmon weir count, AWL sampling, tag recovery (average)	24,000.00
3. Berners River adult escapement count, AWL sampling, tag recovery	7,800.00

C. Project Positions:

Class	PCN	PFT_mm	SFT_mm
FB III (18C)	11-1229	12	0
FB II (16K)	11-1823	12	0
FB III (18K)	11-1085	6	0
FT III (11B)	11-1706	0	7.0
FT II (9A)	11-1511	0	5.0
FT II (9B)	11-1848	0	3.0
FT I (7A)	11-1941	0	3.0
FT I (7B)	11-1670	0	1.0
Ft I (7A)	11-1867	0	1.0

D. Man months assigned to each position for data analysis.

PCN	Report	mm
11-1229	Federal Aid Technical	1.5
11-1229	U.S./Canada Contract	0.5
11-1085	U.S./Canada Contract	0.5
11-1229	Informational Leaflet	2.0

E. Man months assigned to each position for report writing and other presentations of project data.

PCN	Report	mm
11-1229	Federal Aid Technical	1.0
11-1229	U.S./Canada Contract	0.5
11-1085	U.S./Canada Contract	0.5
11-1229	Informational Leaflet	1.5

COMPUTER AND SOFTWARE TOPICS

Review: Region II Escapement Software

Review Leader: Meachum

A new software package is available that can display region, area, or location maps when provided with latitude and longitude coordinates. It will display escapement on the maps via circles that represent magnitude via size and color. "Escapement circles" can be programmed to relate to escapement goals or their relation to past yearly averages.

The program can also produce maps and catch information for in-season management, historical catch averages, etc. The program has the potential for a variety of research and management data displays.

Computer and Software Acquisition

and

Computer Network Update

Discussion Leaders: Seibel, Marshall, Alexandersdottir

BACKGROUND

Substantial progress has been made in developing regional data processing support since 1980 when the Southeast Region received it's first personal, or micro-computer. Presently, 55 personal computers are in use supporting the Region's fisheries management and research programs, both directly and through administrative, budgetary and clerical support staff. One of the primary objectives in 1980 was to provide area management staff with adequate computing capabilities to support fisheries management activities. Not only has this objective been met, but personal computers have now been provided for each primary management and research project throughout the Region.

In a sense, the primary product of the Department is "information". This information, generated from ongoing fisheries management and research programs, provides the basis for management of the State's fisheries resources. It is also important to fishermen, processors and other support industries in planning and conducting fishing and processing operations.

Efficient processing and analysis of the voluminous fisheries data and information directly contributes to improved fisheries management. Acquisition of personal computers for the Region's management and research projects has probably contributed more to efficient and timely use of fisheries information than any other development in recent history. Viewed on a per project basis, costs of providing computers, software and peripheral equipment have been small compared to the benefits derived.

CURRENT STATUS

The Region's basic computer needs--from a hardware standpoint--have generally been met. As indicated above, 55 micro-or personal computers are distributed throughout the seven area offices. In addition, a MicroVAX II minicomputer was purchased in the fall of 1987 and is currently being installed in the Regional Headquarters Office in Douglas. Although some computer purchases are expected annually for normal equipment replacement, new projects support, etc., no additional major hardware purchases are anticipated.

The basic MicroVAX II minicomputer was initially purchased with U.S./ Canada Pacific Salmon Treaty implementation funds. This computer will

provide (1) increased computing power for more complex types of data analysis; and (2) a centralized system for large, regionwide data bases such as catch and escapement data, biological sampling data, coded wire tag data, etc. From a data base management system standpoint, the MicroVAX II will provide increased efficiency both in maintaining these data bases, and in accessing the information. Future plans are to contribute additional State funds for expansion and maintenance of this central computer system to allow non-Treaty applications such as data base management systems for shellfish, herring, etc.

To more efficiently utilize the Region's computer and data processing resources, local area networks are also being planned for some of the larger offices. Networks are currently being installed in the Juneau and Sitka offices, and are planned for the Ketchikan and Petersburg offices. These networks should increase efficiency by improving access to shared data bases and peripheral equipment such as high speed printers, plotters, etc.

FUTURE PLANS

As indicated, above, primary acquisition of computer hardware, and basic software application programs, has generally been completed. Current planning for improvement of the Region's data processing capabilities is now being focused on making more efficient use of the computers currently in operation, primarily through acquisition and implementation of application systems and programs. Present plans include the following:

1. Data base management system.
   (This is currently being purchased.)

2. Local area networks.
   (Currently being installed in Juneau, Sitka and planned for Petersburg and Ketchikan.)

3. Statistical and mathematical analysis programs.

With the expanded regional staff (resulting to a great extent from recent implementation of the U.S./Canada Salmon Treaty), and increased data processing needs in general, the need for additional data processing support positions in the Region will have to be considered. Expanded technical data processing support will probably be required in the following areas:

1. Data base management analyst/programmer (Regional Headquarters).

2. Analyst/programmer support for major area offices (particularly in Ketchikan and Petersburg).

Database Management

Discussion Leader: Alexandersdottir

Items:

1. We are evaluating two software packages for the VAX, and hope to purchase one of these in this fiscal year. One of the criteria established for these was that they must have both VAX and PC-versions, so that any applications developed on the VAX can eventually be incorporated into area offices on the local area networks. The long-term goal will be to provide an integrated database system, which would include historical and inseason catch and effort data, escapement data, stock separation information, etc.

2. Our short term goal for the VAX will be to provide a more accessible updating system, at least for RUNTIME. This will allow area office staff to dial up (similar to the present dial up for the Inseason Catch Reporting System), and check the most recent update available and download the new data if needed.

3. Software Upgrades.

   a. DOS - We still have about 30 machines, which still have DOS version 2.0. We are already having problems with the Fish Ticket System on these machines, as it does not function fully under DOS 2.0, and we can expect more of the same with any new software purchases. I would like to have all these machines upgraded to DOS 3.2. The upgrades will cost $60 - $80. Computer Services will pay for the fish ticket machines, i.e., one in each area office. Other projects will have to provide the money for their machines.

   b. LOTUS 123 - We now have versions 1 and 2, and already have compatability problems. Version 3 will be on the market this spring (or so they say), and new purchases of LOTUS will be version 3. More compatability problems. To the best of my knowledge, upgrades will be $100 from version 2 to version 3, and $150 from version 1 to version 3. I suggest that projects consider upgrading in order to provide a regional standard and ensure compatability.

   c. Logistics - We will send out a memo to all projects involved for you to supply us with budget codes for the upgrades you would like to have. We will do the purchasing as soon as possible. The plan now is that the DOS upgrades will be done this spring, when Karla plans a visit to all area offices. LOTUS upgrades depend on when version 3 is on the market.

TLUMP REVISION

Lana Shea
Habitat Division
Region I

TLUMP Revision

Discussion Leader: Shea

Items:

1. TLUMP was finalized in 1979, revision (draft for public review) is due December 1989. Final plan is due within 1-2 years thereafter.

2. Time for revision doesn't look realistic; 1994 may be more accurate for final plan.

3. There will be around 25 management type units, instead of the 4 LUDs, each with their own established guidelines and prescriptions.

4. Issues of interest to Commercial Fisheries that the State wants addressed:

   - Mariculture permits for upland support - where, when, how; coordinate permit applications, review.

   - Economics of timber harvesting through rotation, considering world market, sustained yield, disproportionate harvest of higher volume in past, economic feasibility of lower volume.

   - Long-term contract cancellation or modification.

   - TTF sites kept to a minimum. Coordinate with other land owners in use of sites.

   - Impacts of each alternative on the economy and lifestyle of each community.

   - Maintaining habitat to support current harvest levels of fish and wildlife, not merely minimum viable populations.

   - In order for fish enhancement projects to be counted on to offset the impacts of roading or logging, the enhancement technique must be cost effective and proven to be biologically sound.

   - Effects of alternatives on commercial fishing and on fish populations should be analyzed and clearly presented so communities can understand the impacts.

   - Theoretical fish habitat capability models must be field tested before they are used as a basis for decisions.

   - Wetlands must be delineated and effects of alternatives on them tracked.

- Channel typing should be used for fine tuning fish habitat protection.

- Cumulative effects of forest management activities since 1950 through 2100 should be analyzed and presented in the draft plan.

- Forest Service should re-evaluate its position on several legal matters:

    a. Ownership of submerged lands under navigable rivers (State says its ours under U.S. Constitution).

    b. Reserved water rights - identify Forest Service needs.

    c. ADF&G anadromous stream permits requirement on Forest Service lands.

- Adequate funding for implementation and monitoring of fish and wildlife management.

- Ensure complete protection of biological productivity of all fish streams in conformance with NFMA.

- Management prescriptions must be specifically locateable on the ground at the VCU level, or smaller, so impacts can be clearly understood.

- Streamside buffers of existing vegetation are essential to sustain natural fisheries production.

- Economic value of fish and wildlife and their habitat should be assessed and compared to timber value over the life of the rotation.

5. Resource Data for Fish

    a. Fish habitat capability models - Track numbers of Management Indicator species (sockeye, coho, pink, cutthroat).

        Problems: limitations of data re: 1) logging and roading contributions to stream sediment and resultant fish survival; 2) changes in stream flow regime in watersheds that are logged.

        Use channel types and associate habitat descriptions with all available fish density data.

    b. Commercial harvest levels, market value, employment and income related to fisheries present and future to at least 50 years, more likely 100.

6. Draft Management Prescriptions

   a. Replaces 4 LUDs with around 25. Management with emphasis on fish habitat: riparian - streamside and lake - includes floodplains and high landslide erosion and windthrow hazard areas adjacent to streams. Riparian defined by channel type: riparian soils and vegetation indicate zone along uncontained channels; minimum 100' horizontal buffer used for contained channels and lakeshores.

      Plus general forest-wide management standards and guidelines.

   b. Gunstrom, Schwan, Josephson and Shea attended 2 1/2 day meeting to draft a partial prescription package. Department will get one week review of another draft, modified by other resource needs, in April. Supposedly fish and wildlife guidelines were left largely intact.

7. Forest Service maintains that the State's land use permitting authority does not apply to Federal lands.

Herring Fisheries/Quotas and Shellfish Quotas

1. We try to manage to take the full yearly quota.

2. We need better cooperation with enforcement re timely fish ticket submissions.

3. We have gone to guideline harvest ranges for shellfish fisheries because harvest quotas have been so hard to meet.

4. We will be able to conduct on-board integration of herring biomass in near future.

5. Ben and Tim are looking at herring scale pattern analysis as a stock separation technique. Marshall - based on studies so far, this doesn't look too promising. Thinks that tagging holds the greatest promise.

6. We could operate on a "range" basis for herring, but it would depend on the area; we may wish to continue to set quotas for smaller areas.
